P.O. Box C-0908
400 7th Seventh Street North
La Crosse, Wisconsin 54602-0908

C O N T R A C T V O L U M E

PROJECT: 2015-0415 AUDIO VISUAL SYSTEM UPGRADE PROJECT FOR THE LUNDA CENTER on the Western Technical College campus.

Advertising Dates Beginning: March 24, 2015

Bid Due Date: Wednesday, April 15, 2015 (2:00 p.m. Local Time)
Location: 400 7th Street N, Room R221, Business Office

NOTICE TO BIDDERS
Bid Notice Number 2015-0415

The Board of the Western Technical College District will receive sealed bids until **2:00 p.m. local time on Wednesday the 15th day of April 2015** at the Academic Resource Center Rm.-R221, P.O. Box C-0908, La Crosse, WI 54602-0908 for the following to be delivered F.O.B. per specifications:

AUDIO VISUAL SYSTEM UPGRADE PROJECT FOR THE LUNDA CENTER

The award(s) on the above item(s) will be made to the lowest responsible bidder who meets specifications and shall be in accordance with the specifications for the same now on file at the Business Office for the inspection of bidders.

All bids must be guaranteed for 60 days after the date of opening.

Further information and bid forms may be obtained by contacting De Anne Otto, Western Technical College, 400 Seventh Street North, Post Office Box C-0908, La Crosse, WI 54602-0908, by email address ottod@westerntc.edu or by downloading the bid on Western's website www.westerntc.edu/aboutwestern

The Board reserves the right to accept or reject any or all bids or parts of bids, the sole right to determine "equal to", to waive minor irregularities in any bids and to make the award in such manner as may be deemed right and proper and in the best interest of the District.

All bids must be submitted in a sealed envelope which has **CLEARLY MARKED ON ITS FACE: BID NOTICE 2015-0415 AUDIO VISUAL SYSTEM UPGRADE FOR THE LUNDA CENTER. A bid bond in the amount of 5% of the base bid is required and must accompany each bid.**

A public opening will be held in Room R221 in the Academic Resource Center, 400 Seventh Street North, La Crosse, WI on Wednesday, April 15, 2015 at 2 p.m. local time.

Dated this 24th day of March, 2015.

The Board of the Western
Technical College District
Lee Rasch, President

SUBMITTAL INSTRUCTIONS

A completed and signed bid response **must** be received and date/time stamped in by Western Technical College Business Office by 2:00 p.m. local time on the stated bid due date to be considered. Bids not so date/time stamped shall be considered late. **Late bids shall be rejected.** You have been supplied with a pre-addressed return label. Please fill in your vendor name and address on the return label to help us identify this bid response. Please use one of the options below for return of your bid.

MAILING:
Original ***mailed*** bids must be received and date/time stamped at Western Technical College Business Office,400 7th Street N, PO Box C0908, La Crosse, WI 54602 **by 2:00 p.m. local time** on the stated bid due date.

HAND DELIVERY:
Original ***hand-delivered*** bids may be delivered by vendor or third-party/courier service **in a sealed envelope or package.** Bids must be received and date/time stamped at Western Technical College Business Office,400 7th Street N, PO Box C0908, La Crosse, WI 54602 **by 2:00 p.m. local time** on the stated bid due date.

A bid bond in the amount of five percent (5%) of the base bid is required and must accompany each bid.

VENDOR NOTE: FOR THE PURPOSES OF THE RETURN ADDRESS LABEL, IF THE ADDRESS IS THE SAME AS YOU LISTED ON THE REQUEST FOR BID FORM – YOU DO NOT NEED TO FILL OUT THE RETURN ADDRESS LABEL.

RETURN ADDRESS LABEL: ⇩

OFFICIAL SEALED
NUMBER: 2015-0415
DUE DATE: 04/15/2015 TIME: 2:00pm local time

INSERT
VENDOR NAME HERE: _____

ADDRESS: _____

_____

_____

Western Technical College
Business Office
400 7th Street N
PO Box C0908
La Crosse, WI 54602

TABLE OF CONTENTS

	PAGE
SECTION #1: GENERAL INFORMATION	**4-5**
1.1 Purpose	
1.2 Background of College	
1.3 Organization of Solicitation Document	
1.4 Definitions	
1.5 Form of Agreement	
1.6 Liability for Costs	
1.7 Debarment	
1.8 Promotional Materials/Endorsements	
SECTION #2: RFB PROCESS INSTRUCTIONS	**6-8**
2.1 Bid Submission Due Date	
2.2 Bid Bond	
2.3 Clarifications and/or Revisions through Designated Contact	
2.4 Applicable Dates	
2.5 Non-Conforming Terms and Conditions	
2.6 Exceptions to Bid Specifications and Terms	
2.7 Confidential/Proprietary Information	
2.8 Acceptance or Rejections of Bids	
2.9 Right to Amendments/Addendums	
2.10 Required Forms	
2.11 Qualified Supplier Certification Forms	
2.12 Request for Financial Statements	
2.13 Withdrawal of Bids	
2.14 Firm Bids	
2.15 Level of Competing Bids Received	
2.16 State Sales Tax and Federal Excise Tax Exemption	
SECTION #3: PERFORMANCE AND CONTRACT REQUIREMENTS	**9-13**

ATTACHMENT A PROJECT SCOPE DESCRIPTION/SPECIFICATIONS
ATTACHMENT B PRODUCT PRICING/COST SUMMARY
ATTACHMENT C SIGNATURE PAGE
ATTACHMENT D QUALIFIED SUPPLIER CERTIFICATION FORM
ATTACHMENT E VENDOR REFERENCE
ATTACHMENT F STANDARD TERMS AND CONDITIONS
ATTACHMENT G AIA DOCUMENT A132-2009

Section #1: General Information

1.1 Statement of Purpose:

The purpose of this document is to provide interested parties with information to enable them to prepare and submit a bid for the Audio Visual System Upgrade Project at the Lunda Center on the Western Technical College campus as per the terms and specification contained herein.

Western Technical College through its Business Office, hereinafter referred to as WTC, is soliciting bids from qualified vendors who are able to provide the services described in Attachment A—Scope of Work. Due to the complexity of this project all vendors wishing to submit a bid are **required** to attend a bid walk-through on March 30, 2015 at 11:00am. The location of the walk-through is:

Western Technical College
Lunda Center
319 Seventh Street North
La Crosse, WI 54601

Here is a link to a campus map http://www.westerntc.edu/maps/ . This link also provides information about parking on campus.

1.2 Background:

Description of College

Western Technical College is one of sixteen (16) technical college districts in the state of Wisconsin. WESTERN TECHNICAL COLLEGE serves parts or all of eleven (11) counties and offering associate degrees, technical diplomas and certificates in over 60 programs to approximately 16,000 (head count) students. WESTERN TECHNICAL COLLEGE employs approximately 400 full-time and 645 part-time faculty and staff members. For the fiscal year ending June 30, 2015, WESTERN TECHNICAL COLLEGE's budgeted total expenditures were approximately $152.58 million.

Campus Information

WESTERN TECHNICAL COLLEGE is located in La Crosse, WI. We also have six regional locations in Black River Falls, Independence, Mauston, Tomah, Sparta, and Viroqua. The main campus is located in La Crosse.

Educational Information

WESTERN TECHNICAL COLLEGE is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools. WESTERN TECHNICAL COLLEGE offers a variety of educational and training opportunities including More than 60 programs of study in 10 career cluster areas including, Architecture, Graphics & Design; Business & Information Technology; Health & Public Safety; and Mechanical. Other programs and services include apprenticeship instruction, adult basic education, customized business and industry training, counseling, testing and career services.

Mission Statement and Goals

Western Technical College provides relevant, high quality education, in a collaborative and sustainable environment, that changes the lives of students and grows our communities.

Goals:

- Increase "C" or better course completion 1% per year through 2020
- Increase annual number of credit students served to 10,000 by 2020
- Reduce indirect and direct cost per credit hour by 5% by 2020
- Score higher than 90% of peer groups in "top box" satisfaction

1.3 Organization of this Solicitation Document

This document is divided into three main sections. The sections also refer to "Attachments" when such organization assists in making this document more fluid. The five main sections are:

Section 1 General Information (generally states the intent of the solicitation)

Section 2 Instructions to Bidders (contains Information on the bid process)

Section 3 Performance and Contract Requirements (contains performance clauses that will become part of any awarded contract).

Attachment A: Project Scot/Description/Specifications

1.4 Definitions: The following definitions are used throughout this Request for Bid:

Contractor means successful Proposer awarded under this RFB process.
MBE means Minority Business Enterprise.
P-Card means Procurement Card (Campus credit card).
Bidder means a firm submitting a bid in response to this Request for Bid.
RFB means Request for Bid.
WTC means WTC Purchasing Consortium
Customer is Western Technical College (WTC)
Confidential Information shall mean information or data that may be exempt from disclosure to the public or other unauthorized persons under state or federal law. Confidential Information includes, but is not limited to, a combination of names, addresses, Social Security numbers, e-mail addresses, telephone numbers, financial profiles, credit card information, driver's license numbers, medical data, law enforcement records, agency source code or object code, and agency security data.
Proprietary Information shall mean information owned by the Contractor to which the Contractor claims an interest to be protected under law. Proprietary Information is information which qualifies as a trade secret, as provided in s. 19.36(5), Wis. Stats., or material which can be kept confidential under the Wisconsin public records law.

1.5 Form of Agreement:
The form of agreement that shall be required for the successful bidder of this RFB is the AIA Document A132-2009, "Standard Form of Agreement Between Owner and Contractor, Construction Manager and Adviser Edition". A copy of this agreement is included as Attachment G.

1.6 Liability for Costs:
WTC is not liable for any cost incurred by bidders in replying to this RFB.

1.7 Debarment:
Federal Executive Order (E.O.) 12549 "Debarment" requires that all contractors receiving individual awards, using federal funds, and all subrecipients certify that the organization and its principals are not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from doing business with the Federal Government. As a part of this bid document there is debarment language and a signature block for you to self-certify your debarment status on the Bidder Response Sheet. Failure to supply this information may disqualify your bid. Information on debarment is available at the following websites: www.epls.gov and www.arnet.gov/far/.

1.8 Promotional Materials:
Contractor agrees to not use promotional or marketing material which states expressly or by fair implication that the College endorses either the Contractor or any sponsor of such material.

Section # 2: Process Instructions

2 . 1 Bid Submission Due Date:

Bidders must submit their bid response in a mailed version or via hand delivery. Email and fax versions will not be accepted. **The RFB responses are due at Western Technical College, Business Office by 2:00 PM local time on Wednesday, April 15, 2015**. Any bids received after the specified due date and time will be rejected.

2.2 Bid Bond:

A bid bond in the amount of five percent (5%) of the base bid is required and must accompany each bid.

2.3 Clarifications:

Any and all questions regarding this RFB must be submitted in writing only to the Western Technical College Business Office via e-mail to: De Anne Otto ottod@westerntc.edu or Diana Hanson hansond@westerntc.edu. Verbal inquiries will NOT be accepted.

The "**issuing agency**" for this RFB is Western Technical College, with its address as follows:

Western Technical College
400 7th Street N
Business Office, Room 221
La Crosse, WI 54601

No information provided verbally, or by any WTC personnel other than the individuals listed above, will be considered binding for this agreement unless formalized in writing. All respondents should use this written document and its attachments as the sole basis for preparing and submitting bids.

Additionally, the bidder is prohibited from initiating communication related to this RFB, to any WTC official or any employee considering the bids, prior to the time an award decision has been made by WTC.

2.4 Applicable Dates:

March 24, 2015	RFB Released
March 30, 2015	Mandatory Walk-through
April 15, 2015 2:00PM local time	Bids Due
July 24, 2015	Completion date for project

2.5 Non-Conforming Terms and Conditions:

A response that includes contractual terms and conditions that do not conform to the contractual terms and conditions in the RFB document are subject to rejection as nonresponsive. The WTC reserves the right to permit the Proposer to withdraw nonconforming terms and conditions from its response or to negotiate changes to the contractual requirements prior to making a determination of responsiveness and award.

2 . 6 Exceptions to Bid Specifications and Terms:

Any exceptions to the bid specifications and terms must be clearly documented on an attached sheet to this bid form and indicated as "Exceptions to Specification and Terms". WTC reserves the right to determine if any noted exceptions or qualifying statements indicated in a bid are in the best interest of WTC and reserves the option to reject individual bids on the basis of Exceptions to Specifications and Terms.

Submittal of a complete contract replacement or substitution for the terms and conditions of this RFB Contract will not be acceptable and may be grounds for rejection or disqualification of the bid submitted.

2.7 Confidential/Proprietary Information

Any restrictions on the use of data contained within a request, must be clearly stated in the RFB itself.

Proprietary information submitted in response to a request will be handled in accordance with applicable State of Wisconsin procurement regulations and the Wisconsin public records law. Proprietary restrictions normally are not accepted. However, when accepted, it is the vendor's responsibility to defend the determination in the event of an appeal or litigation.

Any material submitted by the vendor in response to this request that the vendor considers confidential and proprietary information and which qualifies as a trade secret, as provided in s. 19.36(5), Wis. Stats.; or material which can be kept confidential under the Wisconsin public records law, must be identified on a Designation of Confidential and Proprietary Information form. This form may be obtained by contacting Diana Hanson at hansond@westerntc.edu. RFB prices cannot be held confidential.

Marking of the entire response as proprietary will neither be accepted nor honored. The College cannot guarantee that all such material noted remains confidential, particularly if it becomes a significant consideration in contract award. Information will only be kept confidential to the extent allowed by Wisconsin Public Disclosure Law.

2.8 Acceptance or Rejection of Bids:

This RFB does not commit WTC to award a contract, to pay any costs incurred in the preparation of a response to this request, or to procure or contract for services or supplies as a result of this RFB process. WTC reserves the right to accept or reject any portion of a bid, the complete bid, or all bids received as a result of this request, to waive any minor irregularities in the process or procedure, to negotiate with any qualified source, or to cancel in part or in its entirety, this RFB, if it is considered to be in the best interest of WTC to do so.

2.9 Right to Amendments/Addendums:

WTC reserves the right to amend the terms and specifications of this RFB as necessary during the process.

Amendment/Addendum of Bids:

a. By WTC: Requests for Bids may be amended by WTC in response to a need for further clarification, specifications, or requirements changes, new opening date, or any other changes needed. In the event of any formal published changes to the terms and/or specifications of this RFB, notice will be posted to all of the Bidders using the same methods as originally used for posting.

b. By Vendor: Bids may be amended after receipt but before opening by WTC by submitting a later dated bid that specifically states it is amending an earlier submitted bid. No bid may be amended after the RFB due date unless requested by WTC.

2.10 Required Forms to Submit Bid Information:

No bids will be accepted on any other form(s) than those herewith specified and/or provided with this RFB.

2.11 Qualified Supplier Certification Form:

Included with the bid documents is a "Qualified Supplier Certification Form" that must be completed properly and submitted with the required bid documents in order for the Bidder to have a complete bid for consideration. Only bids from qualified suppliers shall be considered. This form must be signed and be included with the bid response by the specified bid due date and time.

2.12 Request for Financial Statements:

WTC and Participating agencies may request financial statements containing three (3) years of Profit and Loss statements, Balance Sheets, and other financial documents for purposes of evaluating the financial ability of firms to provide the scope of service and support required by this RFB.

2.13 Withdrawal of Bids:

Bids may be withdrawn by the Bidders any time prior to the due date of the bid. These bids will not be opened or considered. Bidders may request that their bid be withdrawn after the due date and time, however, these will be opened and will become part of the public record at the point the RFB process is completed. Negligence on the part of the bidder in preparing the bid confers no right of modification of the bid after the due date for submission.

2.14 Firm Bids:

All terms and conditions of the bids submitted are to be firm for a minimum of sixty (60) days from the award

of the contract. Any price increase request (or other proposed change in any of the contract terms) must be requested in writing and must have a written justification showing why the price change or other term change is being requested. WTC reserves the right to review any existing index or other third party measure to verify information provided by the Contractor under these conditions. WTCS will accept or reject the proposed change in contract and reserves the right to negotiate terms with the Contractor based on the best interests of the WTC. Any exceptions shall be fully noted.

2.15 Level of Competing Bids Received:
WTC reserves the right to reject all bids received and resubmit the RFB if it feels an adequate level of competition was not obtained, if specifications/terms did not allow for a sufficient level of competing bids to be received, if desired specifications, features, or standards were not acceptable or if bids of sufficient quality or completeness were not received.

2.16 State Sales Tax and Federal Excise Tax Exemption:
Notice is hereby given that WTC is exempt from state sales taxes and federal excise taxes. Such taxes should not be included in prices or quotes proposed to WTC and will not be paid by WTC for products or services received.

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Section #3: Contractual Requirements

The terms listed in this section (Contractual Requirements) shall be the minimum required under this RFB.

3.1 Insurance:

Insurance requirements or submission of a Certificate of Insurance IS REQUIRED for this contract. A Certificate of Insurance must be submitted by the Contractor to WTC as a condition to performing any work on the Customer's site location. The Certificate of Insurance must also list WTC as "additional insured". Minimal required insurance levels is as follows:

General Liability…… $1,000,000
Automobile Liability…….. $1,000,000
Workman's Compensation……..to Wisconsin state minimum requirements

- The vendor shall bear full and complete responsibility for all risk of damage or loss of equipment, products or money resulting from any cause whatsoever and shall not penalize Western for any losses incurred related to this contract.
- The vendor will provide sixty (60) calendar days written notice to Western, before cancellation, reduction or other modifications of vendor's insurance coverage
- Cancellation, non-renewal or expiration of insurance or reduction of coverage prior to expiration of the contract will constitute an automatic termination unless the contractor obtains other or additional insurance to cover the risks as herein required.
- Western shall promptly notify the contractor in writing of any claims against either Western or the vendor, and in the event of a suit being filed, shall promptly forward to the vendor all papers in connection therewith. Western shall not incur any expense or make any settlement of any such claims or suit without contractor's consent.

3.2 Applicable Law:

This contract will be governed by Wisconsin State Statute and the provisions of the Uniform Commercial Code (UCC). WTC is provided all rights and remedies of contract as afforded under the UCC for the State of Wisconsin, and include all rights and protections afforded public institutions under the laws of Wisconsin and any federal laws or statutes that apply.

3.3 Prevailing Wage Rate:

Western Technical College has received a prevailing wage determination for work performed on this project. Those wages can be obtained by contacting De Anne Otto at dotto@westerntc.edu or at 608-789-2069. To the extent required by Sec. 66.0903 Wisconsin State Statutes and Chapter DWD 290 of the Wisconsin Administrative Code, the Contractor shall pay the prevailing wage for work performed in fulfillment of this project and at all times comply with and observe all requirements of prevailing wage laws which are in effect during the period of this Contract and which in any manner affect the work or its conduct.

3.4 Performance Bond:

The successful bidder (contractor) will be required to furnish a performance bond for the full amount of award to assure delivery of equipment or services identical to that ordered and specified, and to provide that any equipment which fails because of defects in materials or workmanship or does not give satisfactory performance under normal usage conditions will be replaced without cost to Western Technical College. Such bond must be furnished prior to issuance of the contract. Failure to provide the required bond may result in disqualification of bid.

3.5 Nondiscrimination:

In connection with the performance of work under this agreement, the Contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, marital status, sexual orientation, sex, disability, national origin or ancestry.

For purposes of any contract issued by the WTC, the supplier is to comply with Executive Order 11246

entitled “Equal Employment Opportunity” as amended by Executive Order 11375, and as supplemented in Department of Labor Regulations (41 CFR Part 60).

3.6 Assignment or Subcontract:
Neither party shall assign a right or interest, delegate or subcontract any obligation required under this contract without the written consent of the other party.

Any Contract resulting from this bid shall not be, in whole or in part, subcontracted, assigned, or otherwise transferred to any Subcontractor without prior written approval by WTC.

Upon request Contractor must provide Subcontractor’s complete contact information including EIN# (TIN#, SS#) and signed W-9 form.

WTC shall have the right to audit Subcontractor invoices at any time during the course of this Contract.

The Contractor shall be directly responsible for any subcontractor's performance and work quality when used by the Contractor to carry out the scope of this contract. WTC reserves the right to assess Contractor Liquidated Damages in excess of the contract amount for Subcontractor’s failure to perform or inability to complete required project milestones.

Subcontractors must abide by all terms and conditions under this Contract.

If Subcontractors are to be used, the Contractor must clearly describe and explain their participation in support of this contract.

3.7 Independent Supplier Status:
The Contractor agrees that it is an independent supplier with respect to the products and services provided pursuant to this agreement. Nothing in this agreement shall be considered to create the relationship of employer and employee between the parties.

3.8 Amendments to Contract Terms and Conditions:
WTC reserve the right to change, modify, or cancel the terms of a contract by providing the Contractor a minimum of thirty (30) days advance written notice. Any and all changes to the terms and conditions of a contract with a Customer will be binding only through formal written addendum. In instances of contract breach by a Contractor, or in instances where the actions or products of a Contractor pose a health risk or safety issue, contract termination can occur immediately with no advance notice provided to the Contractor. (See Contract Termination below).

3.9 Right to Negotiate Contract Terms: WTC reserves the right to negotiate terms including scope of work, pricing, and terms and conditions with Bidders prior to final award of the RFB process and entering into a final contract agreement.

3.10 Contract Termination:
WTC may terminate this Contract at any time, **without cause**, by providing 15 days written notice to the Contractor. If the Contract is so terminated, the WTC/Customer is liable only for payments for products provided or services performed, to the extent that any actual direct costs have been incurred by the Contractor pursuant to fulfilling the contract. The WTC/Customer will be obligated to pay such expenses up to the date of the termination.

3.11 Termination of Contract for Cause:
Shall either party **fail to perform** under the terms of this Contract; the aggrieved party may notify the other party if failure to remedy the same within said period, the other party shall then have the right to terminate this Contract **immediately**. Performance failure can be defined as but not limited to: continued failure to provide products and services on agreed upon dates, failure to provide call backs on a timely basis, continued failure to respond to on call requests, damage to Customers equipment or property, theft of Customer or Customers employee property, failure to provide products or services to specifications, inappropriate actions, comments or behavior of staff persons while on Customer sites, failure to provide

support personnel able to respond to status or performance issues or failure to provide any of the Terms, Conditions, Specifications or Special Conditions of Bid.

Notwithstanding the above, the Contractor shall not be relieved of liability to the Customer for damages sustained by the Customer by virtue of any breach of the contract by the Contractor, and the Customer may withhold any payments to the Contractor for the purpose of set off until such time as the exact amount of damages due to the Customer from the Contractor is determined.

If at any time the Contractor performance **threatens the health and/or safety** of WTC, its staff, students or others who may be on campus, the WTC has the right to cancel and terminate the Contract without notice.

Failure to maintain the required Certificates of Insurance, Permits and Licenses shall be cause for Contract termination. If the Contractor fails to maintain and keep in force the insurance as provided in Standard Terms and Conditions, Section 22.0, the WTC has the right to cancel and terminate the Contract without notice.

3.12 Waiver:

One or more waiver by any party of any term of the contract will not be construed as a waiver of a subsequent breach of the same or any other term. The consent or approval given by any party with respect to any act by the other party requiring such consent or approval shall not be deemed to waive the need for further consent or approval of any subsequent similar act by such party.

3.13 Auditor Access:

In the event that the Customer deems it necessary to conduct an audit or inspection, the Contractor shall, during normal business hours, furnish or make available at a time designated by the Customer and in a reasonable form required by the Customer, information, records and reports regarding powers, duties, activities, organization, property, financial transactions, method of operation, or any and all other records, reports or information in supplier's custody or control, relating to this contract and to the Customer.

Any information provided to the auditors, which is deemed confidential by federal, state or local laws shall be held as confidential and not disclosed to the public.

3.14 Indemnification And Defense Of Suits:

The Contractor agrees to indemnify, hold harmless, and defend the WTC, its members and any Customer, its officers, agents and employees from any and all liability including claims, demands, damages, actions or causes of action, together with any and all losses, costs, or expense, including attorney fees, where such liability is founded upon or grows out of the acts, errors, or omissions of the Contractor, its employees, agents or Subcontractors.

3.15 Force Majeure:

If the performance of any part of this Contract by either party is delayed or rendered impossible by reason of natural disaster, flood, fire, riot, explosion, war or actions or decrees of governmental bodies, the party who has been so affected shall immediately give notice to the other party of the nature of such conditions and the extent of delay and shall do everything possible to resume performance. Upon receipt and acceptance of such notice, all obligations under this Contract shall immediately be suspended. If the period of nonperformance exceeds fifteen (15) days from the receipt of notice of the Force Majeure Event, the party whose ability to perform has not been so affected may by giving written notice, terminate this Contract.

3.16 Invoices/Payments:

WTC will pay the Contractor Net 30 days within receipt of invoice for each phase in accordance with milestones and achievements and as accepted by the College. Bidders should state in their RFB response if they will include any discounts for earlier payment, for example, 1% 10 days/Net 30.

Contractor may submit a progress payment plan but in any case, payment will only be made for work performed and final payment will not be made until satisfactory completion of the project.

Contractor must agree that all invoices and purchasing card charges shall reflect the prices and discounts established for the items on this contract for all orders placed even though the contract number and/or correct prices may not be referenced on each order.

Before payment is made Accounts Payable must verify that all invoiced charges are correct as per this Contract. Only properly submitted invoices will be officially processed for payment. Prompt payment requires that your invoices be clear and complete in conformity with the instructions below. All invoices **must be itemized** showing:

- Contractor name
- Remit to address
- Purchase order number
- Release number if given
- Date of order/release
- Item manufacturer's name or abbreviation (if applicable)
- Complete item description identical to those stated in bid
- Prices per the contract

3.17 Protection of College's Confidential Information:

Contractor acknowledges that some of the material and information that may come into its possession or knowledge in connection with this Contract or its performance may consist of information that is exempt from disclosure to the public or other unauthorized persons under state or federal laws ("Confidential Information"). Contractor agrees to hold College's Confidential Information in strictest confidence and not to make use of Confidential Information for any purpose other than the performance of this Contract, to release it only to authorized employees or Subcontractors requiring such information for the purposes of carrying out this Contract, and not to release, divulge, publish, transfer, sell, disclose, or otherwise make the information known to any other party without the College's express written consent or as provided by law. Contractor agrees to implement reasonable physical, electronic, and managerial safeguards to prevent unauthorized access to College's Confidential Information.

3.17 Notification of Award:

All Bid Submitters who respond to this RFB will be notified in writing of WTC's award of contract(s) as a result of this RFB.

3.18 Public Inspection of Bids:

To maintain the integrity of the competitive bid process, bids received from suppliers will NOT be made available to other competing suppliers or to individuals or firms outside of the WTC bid evaluation team until an award decision and notification have been made.

3.19 Dispute Process:

Any dispute of WTC's award must be received no later than five (5) working days after the award notice is issued by the Business Office. A written dispute must be filed with:

Wade Hackbarth
Vice President for Finance and Operations
Western Technical College
400 7th Street N
PO Box C0908
La Crosse, WI 54602

with a copy to:

De Anne Otto
Purchasing and Accounts Payable Manager
Western Technical College
400 7th Street N
PO Box C0908
La Crosse, WI 54602

The protest must be in writing. Protesters must make their protests as specific as possible and must identify statutes and Wisconsin Administrative Code provisions that are alleged to have been violated.

SECTION 27 40 00
AUDIO-VISUAL SYSTEMS

INDEX:

INDEX:
PART 1 GENERAL
RELATED DOCUMENTS
DEFINITIONS
INSTRUCTIONS TO BIDDERS.
SCOPE
SYSTEMS' DESCRIPTIONS SUMMARY
BIDDER QUALIFICATIONS
SUBMITTALS
PART 2 PRODUCTS
EQUIPMENT STANDARDS
SUBSTITUTIONS
EQUIPMENT SPECIFICATIONS
CABLING
PART 3 EXECUTION
GENERAL
WIRING
LABELING
RACEWAYS AND PATHWAYS
EQUIPMENT RACKS
AV CONTROL SYSTEM
DIGITAL SOUND PROCESSOR SYSTEM
AV NETWORK SWITCHES
EQUIPMENT GROUNDING
AV SYSTEMS CLEAN POWER
WORK IN OTHER SECTIONS
SPECIFIC TECHNICAL REQUIREMENTS
MAINTENANCE AND OTHER MANUALS
COMMISSIONING
FUNCTIONAL PERFORMANCE VERIFICATION
TRAINING
EVENT SUPPORT
WARRANTY
END OF SECTION

PART 1 GENERAL

Applicable provisions Division 01 shall govern work in this section.

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General Conditions and other Division 01 specification sections apply to the work of this section.

DEFINITIONS

A. Unless otherwise noted, the following definitions shall govern the specifications herein.

a. "Owner" and "Campus" shall refer to both owner of the project and the owner's authorized representative from Western Technical College.

b. "Construction Manager" shall refer to the primary contact and shall have complete responsibility and final authority for this project. Construction Manager shall be campus contact Dan Murphy, Lunda Center Director.

c. "Control System Programmer" shall refer to the Crestron and DSP programmer contracted outside the scope of this bid.

d. "Architect" shall refer to the project architect.

e. "AV Consultant" shall refer to Professional Audio Designs, INC.

f. "AV Contractor" and "Contractor" shall refer to the successful Bidder responsible for implementation of 27 40 00 specifications.

g. "Shall" is defined as a mandatory requirement of the project.

h. "Will" is defined as a future requirement.

i. "Should" or "May" is defined as strongly encouraged, non-mandatory provisions.

j. "OFE" shall refer to owner furnished equipment.

k. "OFCI" shall refer to owner furnished contractor installed.

l. "CFCI" shall refer to contractor furnished contractor installed. Contractor may include AV Contractor, Electrical Contractor, or Telecom Contractor and shall be detailed in drawings, descriptions, or equipment list.

INSTRUCTIONS TO BIDDERS.

General instructions to bidders apply.

A. Bidder shall provide bidder qualifications submittals and bid submittals as outlined in section "Submittals."

B. Bids submitted shall be prepared based on the official stamped bid documents and related addendum documents. Contractor bids submitted based on any documents other than the official stamped bid documents for this job shall not alleviate the selected AV Contractor of the responsibility of meeting any and all requirements contained within the official stamped bid documents.

C. Bids shall also be based upon the scheduled bidding walk-through March 30, 2015 at 11:00am. Awarding of contract is contingent upon the AV Contractor attending bid walk-through.

D. Project also contains a prioritized list of Bid Alternate items. The AV Contractor shall include a schedule of values for each Bid Alternate package. See section Systems' Descriptions Summary and *Appendix C: Bidding equipment list* for both a description of Bid Alternate packages and list of equipment included in packages.

SCOPE

A. This section covers general requirements associated with the installation of audiovisual systems within:

Western Technical College Lunda Center AV Upgrade

B. Refer to sections listed below for more specific system requirements. Multiple spaces with multiple systems are covered under this section.

C. Provide all materials, labor, and drawings, for a complete and professionally installed systems in working order. Provide any and all connectors, hardware, transformers, power supplies, rack panels, interfaces, fasteners, wire harnessing materials, bushings and any other incidentals required for complete and proper functioning of this system whether specifically listed or not.

D. Information concerning the design intent is contained both within this document and on AV system drawings. Where conflicts exist between drawings and specifications, the AV Contractor must bring the discrepancies to the project's Construction Manager and AV Consultant's attention before the bid due date. If the AV Contractor fails to bring any particular discrepancy to the attention of the AV Consultant before bids are due the most expensive option as determined by the AV Consultant shall prevail unless otherwise approved by AV Consultant.

E. As part of the contract for this work, the AV Contractor shall be required to submit to the Owner a listing of the date or dates that it intends to purchase the audiovisual equipment specified in section AV Contractor. Date(s) submitted shall be coordinated with the project schedule presented by the Construction Manager. Purchase date(s) shall be within 2-3 months of the time the Contractor intends to install the equipment in the building. The Owner reserves the right to negotiate these dates with the AV Contractor. After these dates are agreed upon, the AV Contractor shall not purchase any equipment prior to these dates without written permission from the Owner. The Owner recognizes the AV equipment specified is rapidly changing. The intent of this requirement is to allow the Owner the option of upgrading the equipment to models that are more current to the time of installation. Any changes made to the equipment specifications after bidding that result in increased cost will be considered changes to the contract and will be processed accordingly. Manufacturer’s warranties are to be in full effect for a minimum of one year from substantial completion of AV phase.

F. If this project includes owner furnished equipment (OFE), it will be indicated in the Description section of this document and within drawings. Owner shall have owner furnished equipment delivered to AV Contractors shop or to jobsite. AV Contractor shall coordinate with Owner for receipt of equipment. The Owner shall record the serial numbers of each item, manufacturer, and model onto a spreadsheet. A form with all the information of the equipment being turned over shall be required for the AV Contractor to sign. Upon receipt of owner furnished equipment, the AV Contractor will take possession and responsibility of equipment. AV Contractor will be fully responsible for owner furnished equipment until substantial completion of AV phase or first beneficial use of system by owner or whichever comes first. Therefore, unless AV Contractor has signed the Owner's form agreeing to take control of equipment, the AV Contractor shall not be held responsible for damage or loss of owner furnished equipment.

G. All work shall be completed by 07/24/2015 to allow for Control System Programmer ample time to deploy programming, debug, test, and tune system so as not to interfere with scheduled events. Wire pulls, rack delivery and installation, wire termination, or any other work that will require taking current systems off-line may not being until 06/29/2015.

H. If the AV Contractor is responsible for any delay in installation that results in preventing Control System Programmer’s completion deadline, a penalty fee of $145 per hour for any work performed outside normal operating business hours or beyond completion date will be invoiced directly to AV Contractor. If the AV Contractor is responsible for causing a delay in installation that may result in the cancellation of contracted events, the AV Contractor shall be responsible for compensating the Owner for the full amount of lost revenue.

I. The AV Contractor shall begin rack building and equipment testing in shop, off-site, prior to 06/29/2015 so as to prevent any delay in installation. The AV Contractor shall coordinate with Control System Programmer up to three (3) scheduled shop visits, permitting the Control System Programmer access to AV equipment built off-site, prior to installation, to load code and perform preliminary testing.

J. The AV Contractor shall be responsible for maintaining existing video projectors, projection screens, and audio reinforcement speakers in Founder's Hall. These items, including mounting hardware, shall not be replaced, but integrated into replacement AV system.

K. The AV Contractor shall be responsible for removal of items or wiring that shall be replaced or abandoned. This shall include wiring replacement of digital video lines, abandon analog video lines, removal of existing equipment rack. Items installed in equipment rack and not reused shall be turned over to Owner at the completion of project.

L. The AV Contractor shall be responsible for coordinating with the owner's electrical contractor for any electrical work related to this project. All electrical work shall comply with the current published edition of the National Electrical Code and with all of the legal regulations, including OSHA safety regulations, regulations of municipal, city, local, and other government agencies.

SYSTEMS' DESCRIPTIONS SUMMARY

A. The following systems' descriptions are a summary of system types throughout project.

B. Founders Hall Podiums - Basic
   a. System shall contain owner furnished desktop computer (HDMI and DVI), Blu-ray player (HDMI), laptop video inputs (HDMI and VGA), and legacy document camera video connection (VGA). Video outputs shall be sent to building video matrix switcher (DM 8G+) and video preview monitor (HDMI). Video preview monitor output (HDMI) shall be sent to a video DA to feed both preview monitor and custom confidence monitor output plate on podium. System shall also contain a video switcher with a control processor built in. 7" touch screens shall connect to podium control processor. Each podium shall have a gooseneck microphone for audio. Podiums are existing and shall be reused.

C. Founders Hall Podiums - Advanced
   a. System shall contain owner furnished desktop computer (HDMI and DVI), Blu-ray player (HDMI), laptop video inputs (HDMI and VGA), and legacy document camera video connection (VGA). Video outputs shall be sent to building video matrix switcher (DM 8G+) and video preview monitor (HDMI). Video preview monitor output (HDMI) shall be sent to a video DA to feed both preview monitor and custom confidence monitor output plate on podium. System shall also contain a video switcher with a control processor built in. 7" touch screens shall connect to podium control processor. Each podium shall have a gooseneck microphone for audio. Podiums are existing and shall be reused.
   b. Advanced podium shall contain an AV Bridge to receive video from large video matrix and digital audio via a Dante breakout box. Podium shall be used for larger breakout spaces A and B, for web conferencing.

D. Founders Hall Area Upgrades
   a. Space shall have new digital video receivers (DM 8G+) added to each projector (Six) in areas A through F. In area A and B, as well as the center of A and B, three (3) Pan-Tilt-Zoom cameras (CAT6) shall be installed and connected to camera calibration unit in equipment room. Floor boxes shall have new AV input and output connections installed, replacing existing wires and connections. Connections shall include Dante (CAT5E Ethercon), digital video (DM 8G+ in CAT6 Shielded Ethercon), control system network (RJ45), campus network (RJ45), and power (to remain and not AV contractor responsibility). An additional digital video connection (DM 8G+ in CAT6 Shielded Ethercon) shall be installed for Area A and B only for video output of large video matrix.

E. Conference Room 107 & 108
   a. System shall contain a digital video transmitter (DM 8G+) mounted under conference table with laptop connections (DisplayPort, HDMI, VGA). Transmitter shall be connected to large video matrix. System shall also contain a 80" 1080p resolution display, two (2) pendant speakers and two (2) ceiling microphones for audio and video conferencing. A table top 7" touch screen shall control the room. An USB extender (CAT6) shall also be mounted under conference table connected to a mouse and keyboard (USB) to control remote owner furnished computer in equipment room. A Wide-Angle camera shall also be included for video/web conferencing.

F. Conference Room 106
   a. System shall contain a digital video transmitter (DM 8G+) mounted in an existing podium with laptop connections (HDMI, VGA). Owner furnished computer shall connect to transmitter (DisplayPort, HDMI, VGA). Transmitter shall be connected to large video matrix. System shall also contain a 80" 1080p resolution display, two (2) pendant speakers and two (2) ceiling microphones for audio and video conferencing. A table top 7" touch screen shall control the room.

G. Equipment Room - Large Video Matrix
   a. Full building AV system shall contain a 32x32 digital video matrix switcher to mange video inputs and outputs for Founders Hall spaces, conference rooms 106, 107, and 108, lobby digital signage, and web conferencing systems.
   b. Large video matrix shall contain eleven (11) digital video connections (DM 8G+) for digital video sources throughout the building, four (4) local sources (HDMI), three (3) Pan-Tilt-Zoom cameras (HDMI) from Founders Hall, and two (2) wide-angle cameras (HDMI) from conference room 107 and 108.
   c. Matrix shall also contain eight (8) local outputs (HDMI) for web conference computers, video codec, and program audio, eight (8) digital video outputs (DM 8G+) for projector, lobby display, and areas A and B floor boxes, three (3) video outputs (DM 8G+) for conference room displays, and (3) streaming connections for video preview on all touch screens.

H. Equipment Room - Audio System
   a. Full building AV system shall contain a new digital signal processor (DSP) with expansion input and output boxes. DSP shall contain forty four (44) mic/line inputs, thirty two (32) line outputs, and a Dante audio connection. The DSP shall manage all audio signals for sound reinforcement, web conferencing, video conferencing, and audio conferencing.
   b. Audio sources shall include, ceiling microphones for conference room 106, 107, and 108, four (4) stereo audio inputs from the digital video matrix for program audio, two (2) web conference audio from AV Bridges, one (1) auxiliary input at the rack, one (1) video codecs, one (1) lobby mic input, three (3) lobby line inputs, and eight (8) existing wireless mic units.
   c. Audio output destinations shall include two (2) existing 8-channel amplifiers for sound reinforcement, one (1) video codecs, two (2) web conference audio to AV Bridges, one (1) stereo monitor speaker for equipment room, and one (1) auxiliary output in rack.
   d. Digital audio sources via Dante shall include six (6) founders hall podiums, with two (2) physical inputs (podium mic and podium program audio) and producer input place with two (2) physical inputs. Dante connections shall be installed in area A through F floor boxes.

I. BID ALTERNATE #1 - AV Bridges
   a. Two (2) AV bridges included in package. Two (2) installed in lecterns A and B. Items used for web conferencing from the lecterns.

J. BID ALTERNATE #2 – Assistive Listening System
   a. Package shall include six(6) FM transmitters, six(6) remote antennas, twenty-four(24) receivers, twenty-four(24) AA batteries pairs, for a single ALS, twenty-four (24) ear speakers, and six (6) neck loops.

K. BID ALTERNATE #3 - Portable Digital Video Transmitter and Receiver

b. A single digital video transmitter and digital video receiver for additional flexibility. Items shall be portable.

L. BID ALTERNATE #4 - Atrium Digital Video Scaler
   a. A single digital video scaler shall be added and wired to existing output of digital video matrix

M. BID ALTERNATE #5 - XM Satellite Radios
   a. Three (3) XM Satellite tuners with single antenna. Units would be used for background music stations integrated into conference rooms, large meeting area, and lobby. Inputs on DSP remain available.

BIDDER QUALIFICATIONS

A. The AV Contractor shall furnish a list of five (5) projects whose size, value, scope, and complexity is similar to that being bid. The minimum period of operation for each shall be twelve (12) months. Each project shall include the following:

   a. Name and location of installation

   b. Date of occupancy by Owner

   c. Owner's representative to contact with corresponding telephone number and email address.

   d. Construction Manager and Architect's project manager's telephone numbers and email addresses.

B. A single AV Contractor shall perform the entire work of AV Contractor specifications, unless otherwise noted. AV Contractors must meet the following qualifications:

   a. The AV Contractor shall be capable of providing all systems within full and strict compliance to the provisions included in this specification.

   b. The AV Contractor shall have, at minimum, five (5) active years engaged in installing similar systems included under specification section for AV Contractor.

   c. The AV Contractor shall have access to all necessary equipment and have the organizational capacity and technical competency to perform work properly and expeditiously.

   d. The AV Contractor shall employ competent personnel capable of generating necessary drawings outlined under the Submittal section, in a timely fashion and according to project standards.

   e. The AV Contractor shall employ an adequate number of skilled workers who are thoroughly trained and experienced in the necessary crafts. They shall also be familiar with the specified requirements and methods standard for proper performance of work in this section.

   f. The AV Contractor shall provide a designated supervisor on the project site during all phases of installation and testing of the system. This designated supervisor shall also be the primary contact during all phases. The AV Contractor shall also provide secondary contact information in instances that the designated supervisor is unreachable.

   g. The AV Contractor shall show satisfactory evidence, upon request, that it maintains a fully equipped local service organization capable of furnishing adequate inspection and service to systems, including replacement parts. The service organization shall be capable of a minimum 24 hour on site response time. The AV Contractor shall be prepared to offer a service contract for the maintenance of the systems after the guarantee period.

C. The AV Contractor shall be responsible for equipment testing and therefore should meet the following qualifications:

a. The AV Contractor shall be prepared to furnish a list of equipment for servicing, calibration, and alignment of AV systems upon request of the AV Consultant

b. AV Contractor's testing equipment may include, but is not limited to:

i) Sencore CP500 display analyzer system or equivalent.
ii) Sencore test pattern generator, Quantum Data 780B, or equivalent.
iii) HDMI Generator

D. The AV Consultant reserves the right to request and have furnished to them any additional information required to determine the AV Contractor's ability to complete the work outlined in this section. Such additional information shall be supplied with no additional cost incurred by the Owner.

SUBMITTALS

A. **Bid Submittals**

a. The AV Contractor shall provide an itemized unit price for each system with a list of rooms/spaces at time of bid. Please note that AV systems may have minor variations when applied to project spaces (e.g. speaker counts or display counts). An itemized unit price shall include line item costs for equipment (make and model), material, labor, installation, testing, documentation, commissioning, manuals, training, warranty, and the AV portion of the Schedule of Values consisting of general conditions, bond, mobilization, record drawings, punch-list, cleanup, and demobilization. These line item costs shall be provided at time of bid.

B. **Bidder Qualification Submittals**

a. The AV Contractor shall provide evidence that AV Contractor has met bidder qualifications as outlined in the previous section Bidder Qualifications. Include a list of five (5) projects similar in size, value, scope, and complexity, evidence of five (5) active years engaged in installing similar systems, evidence of personal employed engineer capable of producing shop drawings, and evidence of a local service organization. The AV Contractor shall also provide evidence that AV Contractor employs a factory-trained and certified Digital Video technician. Refer to section "Bidder Qualifications" in Part I.

C. **Shop Drawing Submittals**

a. Two printed sets of completed shop drawings and in electronic form (PDF) shall be provided for the Owner and AV Consultant’s approval. Files submitted in PDF format shall be files saved as or printed to PDF format, NOT scanned, so that they are searchable. In addition, drawings shall be provided in electronic form (.DWG format) on CD. CONTRACTOR SHALL NOT PROCURE EQUIPMENT OR BEGIN WORK ON THIS PROJECT UNTIL SHOP DRAWINGS HAVE BEEN SUBMITTED AND APPROVED.

b. Reproductions of Consultant’s drawings are NOT acceptable. The AV Contractor shall confirm that AV systems are fully understood by providing original shop drawings. Providing original drawings demonstrates that the AV Contractor has reviewed AV equipment locations and connections.

c. Shop Drawing Submittals shall be provided within thirty (30) days of award of contract, or sooner if necessary to comply with construction schedule. Contractor is solely responsible for all costs resulting from delay in providing shop drawings in a timely manner.

d. Shop Drawing Submittals that are re-submitted for additional review shall include revision dates that indicate when changes from previous reviews were performed. All revisions made to submittal documents must be clouded and all clouds must be identified by the corresponding line item number on the review roster. A list of changes to re-submittal documents must also be included.

e. The Shop Drawing Submittals shall be submitted as a single package and include the following items:

i) **Floor Plan Drawings:** The AV Contractor shall provide drawings with locations of all required raceway, AV power, AV data, equipment racks, and TV displays. The AV Contractor shall also indicate locations of pull-boxes, wall boxes, floor boxes. The AV Consultant reserves the right to adjust pull-box locations to accommodate access for maintenance. Drawings shall be made on 30" x 42" reproducible media.

ii) **Reflected Ceiling Plans**: The AV Contractor shall provide drawings with ceiling coordinated device locations, such as ceiling boxes, projectors, projector screens, and loudspeakers. Drawings shall be made on 30" x 42" reproducible media.

iii) **Equipment List:** The AV Contractor shall provide a complete list of all components used for the project in an electronic spreadsheet, preferably in Microsoft Excel. The spreadsheet shall include installation location, quantity, manufacturer, and model number.

iv) **Cable Run Schedule:** The AV Contractor shall provide a complete list of all cable runs used for the project in an electronic spreadsheet, preferably in Microsoft Excel. The spreadsheet shall include termination locations and identification nomenclature.

v) **Schematic Drawings:** The AV Contractor shall provide wiring diagrams showing terminal connections between equipment with consistent terminal numbering, circuit designations, and equipment designations on all drawings. Terminal connections in the equipment shall be numbered to correspond to the diagrams for use in making connections. Wiring diagrams shall be coordinated so that terminal numbering, circuit designation, and equipment or device designations are the same on all drawings. All drawings must be submitted and approved by the Consultant before fabrication starts, but such approval will not waive any specification requirements unless so specifically stated. Final approval will be made after checking the equipment when operated in the field. Drawings shall be made on 30" x 42" reproducible media.

vi) **Rack Elevation Drawings:** The AV Contractor shall provide elevation drawings of equipment racks showing locations of AV equipment being mounted in these racks. Drawings shall include cable layouts, locations for terminal blocks, transformers, relays, power supplies, etc. Drawings shall be made on 30" x 42" reproducible media.

vii) **Mounting Details:** The AV Contractor shall provide drawings of mounting details for all speakers, TV displays, projector screens, and projectors. Drawings shall be made on 30" x 42" reproducible media.

viii) **Custom Millwork Details:** The AV Contractor shall provide drawings of all instructor workstations or credenzas indicating the locations of AV equipment to be mounted in the workstations (if applicable). Drawings shall be made on 30" x 42" reproducible media.

D. **Verification Test Report Submittal**

a. The AV Contractor shall generate a test report documenting and certifying compliance with any and all provisions of this section. Test report shall be made available to AV Consultant a minimum of seven (7) days prior to commissioning.

b. Refer to Part 3, Commissioning for details regarding the requirements of the test report.

c. The AV Contractor shall submit five hard copies or one electronic .PDF of a written report detailing the results of Initial Adjustments and Verification tests including all relevant drawings, charts, test instrument data, and photographs.

d. The AV Contractor shall submit a written letter of certification along with written report stating that the installation conforms to the requirements stated herein, is complete in all respects and ready for inspection, testing and tuning.

E. **As-Built Construction Drawings**

a. Drawings included with the specifications set shall be modified by the AV Contractor to denote as-built information, and shall be included as part of the as-built documentation. As-built documentation shall include a complete list of all cable runs including termination locations, numbers/identification, and test data as required under the section on commissioning.

b. The drawings shall include cable routes and panel locations. Panel locations shall be identified by their sequential number as defined elsewhere in this document. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided.

c. The Owner will provide floor plans in paper and electronic (".dwg", AutoCAD 2014) formats on which as-built construction information shall be added. These documents shall be modified accordingly by the AV Contractor to denote as-built information as defined above and returned to the AV Consultant for acceptance. This information shall be supplied to the Consultant/Engineer no later than four (4) weeks prior to the scheduled occupancy of the affected floors.

d. The AV Contractors shall annotate the base drawings and return to the Owner and AV Consultant in hard copy (same plot size as originals) and electronic (AutoCAD 2014) form.

e. Each drawing submitted by the AV Contractor as part of the Project Documentation shall be identified as an "As-built" drawing and include the following information: (1) The AV Contractor name and/or logo and (2) the date of the drawing.

f. All fonts, color, layer, Model Space/Paper Space conventions established in the base drawings shall be retained by the AV Contractor in preparation of the As-built drawings.

g. Prior to generation of the drawings, the AV Contractor shall provide a sample file and test plot to the AV Consultant for review and approval.

h. All documentation, including hard copy and electronic forms shall become the property of the Owner.

i. The AV Contractor shall provide electronic images of each equipment rack for reference to the AV Consultant. Electronic images shall be 10 megapixel or higher, well lit, and clear full images of the front and back of the equipment rack with doors open.

F. **Maintenance and Operating Manuals**

a. The Contractor shall provide four (4) complete sets, in hard cover binders, of maintenance and operating instructions for this system. These manuals shall include the following:

i) A table of contents.

ii) Owner's manuals for all provided equipment.

iii) Simplified operational procedures with diagrams depicting the actual equipment front panels showing the nominal level settings for the controls.

iv) FAQ: Question and answer type trouble-shooting guides.

v) As-Built Drawings One copy of as built drawings.

vi) Warranty Schedule: list of dates within four (4) month increments for return visit in compliance with warranty specifications. See section Warranty.

b. Prior to submitting the four (4) hard copies, the AV Contractor shall submit an electronic version to the AV Consultant for review to prevent any reprints due to errors.

c. The AV Contractor shall maintain in their office a record of all original manual information to be able to issue as a replacement copy, at the Owner's expense, during the time the equipment is in actual service.

PART 2 PRODUCTS

EQUIPMENT STANDARDS

A. Complete AV systems consisting of all the individual system components and peripherals as shown or listed shall be provided to fulfill design intent. Equivalent manufacturers and products shall be in strict accordance with this specification. Substitutions are permitted only with prior approval, in writing, from the AV consultant. See section Substitutions.

B. It is the responsibility of the AV Contractor to verify the completeness of the drawings, specifications, and schedules and the suitability of devices to meet the design intent of the specifications. The AV Contractor shall provide any additional equipment, accessories, or incidentals required, whether or not specifically mentioned herein, without claim for additional payment, it being understood that a complete operational system is required.

C. All materials and equipment shall be new and unused. Unless specifically approved by the AV Consultant, all materials and equipment in the system shall be the standard design or model ordinarily supplied as a product item by manufacturers regularly engaged in the production of such equipment. They shall be the manufacturer's latest standard designs current at the time of delivery, modified only to the extent necessary to comply with the requirements of these specifications. Where two or more units of the same class of equipment are required, such units shall be the standard product of a single manufacturer, but individual classes of compatible equipment may be the products of different manufacturers. Manufacturers shall be established in the industry so that prompt and continued service and delivery of spare parts may be assured.

D. All equipment quantities listed in audiovisual specification sections are for reference only and may vary depending on the type of manufacturer equipment provided. Refer to schematic drawings to provide AV Consultant-approved quantities to meet design intent.

E. All components that comprise the various systems shall be UL listed where a UL listing exists for that component.

SUBSTITUTIONS

A. Substitutions are strictly prohibited without prior approval from the AV Consultant. The AV Contractor's shall obtain approval on all substitutions prior to bidding from the AV Consultant. FAILURE TO OBTAIN APPROVAL FOR SUBSTITUTIONS SHALL BIND THE CONTRACTOR TO PROVIDE THE SPECIFIED EQUIPMENT WITHOUT REQUEST FOR ADDITIONAL PAYMENT.

B. The AV Contractors request for approval of a substitution shall include the reason for requesting the substitution along with any relevant product data. Engineering data must be submitted along with request showing that the substitution will work and perform to the design intent of the system.

C. Request to substitute loudspeakers shall include a complete room model of the space in EASE 4.2 or higher demonstrating, to the consultant's satisfaction, the suitability of the proposed loudspeaker in addition to documentation described above.

D. Requests for substitutions must be submitted at least 10 days prior to bid due date. Bidders will be notified of approved substitutions via addendum.

E. If a substitution replaces multiple pieces of gear, all components to be replaced shall be identified in the substitution request. If a component listed herein is no longer necessary for proper system functioning due to an equipment substitution, it must be removed from the equipment list and properly credited back to the Owner.

EQUIPMENT SPECIFICATIONS

A. Bidding Equipment List

a. Bidding Equipment List has been provided to the AV Contractor for use in preparing the bid response. The list includes AV components and peripherals for AV systems. The list includes major components and peripherals, but should not be considered all-inclusive. Itemized list includes the device name and generic description. Corresponding equipment specifications are listed below. See also Part 3 Execution, section title General, subsection D.

b. Bidding Equipment List is included as *Appendix C: Bidding Equipment List* to this specification document.

CABLING

A. A table has been provided in *Appendix B: Cable Specifications* with approved and suggested Manufacturer and Part #'s for cables types listed on Sheet AV001.

PART 3 EXECUTION

GENERAL

A. The AV Contractor shall verify dimensions and conditions at the project site. The AV Contractor shall submit any conflicts in a timely manner for resolution and coordinate their efforts with Construction Manager to ensure timely completion of work and to avoid conflicts over scheduling, access, and locations of their work.

B. Materials to be furnished by the AV Contractor may include all back boxes noted as "Specialty" on Sheet AV001 and all low voltage wire and cable. The Construction Manager shall be responsible for ensuring all floor boxes and back boxes noted as Standard, if applicable, are furnished for the project. The demarcation table on Sheet AV001 is a suggested scope of work.

C. The Owner shall contract an Electrical Contractor to ensure all power connections are installed as noted on the drawings. The AV Contractor shall be responsible for providing a schedule of completion of each system or space to the Electrical Contractor to ensure timely completion of AV installation.

D. The AV Contractor shall furnish all mounting brackets, raceways, sleeves, rack rails, termination plugs, jacks, faceplate mounting hardware, and other unique components as necessary to securely mount equipment and panels.

E. The AV Contractor shall furnish all required equipment whether or not specifically mentioned in these specifications or on the drawings. Such devices shall include but not be limited to hardware, fasteners, rack screws, rack brackets, power supplies, fan guards, grill covers, impedance matching devices, transformers, line pads, line amplifiers, EDID emulators, DM repeaters, DVI/HDMI cable equalizers, DVI/HDMI repeaters, Skew compensation, relay and LED power supplies, and other devices as necessary to interface, control, or balance the AV systems.

F. The AV Contractor shall facilitate the integration of other room systems including lighting control systems, motorized shades, motorized projection lifts, motorized projection screens, etc, where noted on drawings.

G. The AV Contractor shall furnish painting and finishing as may be required to match components, cabinetry, and room décor. Contractor shall coordinate the color and finish of any visible element of the system with Construction Manager approval.

H. The AV Contractor shall not mount any projector, camera, or other AV device to any structure that is not sufficiently supportive and free of vibration or shake. If there is vibration or shake in the building structure that causes any degradation of the video image, the AV Contractor shall modify the mounting method so the projector, camera, or other AV device is isolated from this vibration or shake.

I. The AV Contractor shall provide power control for any and all equipment racks and AV devices including but not limited to what is shown on the bid documents. All devices should be capable of being shut down with the exception of the control system itself.

J. The AV Contractor shall be responsible for providing a full list of MAC addresses and serial numbers to Owner, AV Consultant, and Control System Programmer prior to 6/1/2015.

K. The AV Contractor shall test displays and projectors for system functionality, by testing discrete power on/off control as well as other described functions, prior to ordering all displays or projectors in project as control of displays may differ from original design to purchase date.

L. The AV Contractor shall be responsible for updated all the firmware for devices within one (1) week prior to the System Programmer arrival.

WIRING

A. All applicable provisions of NEC and local codes shall apply.

B. All BNC type connections shall employ true 75-ohm or 50-ohm connectors based on component manufacturer specifications.

C. All cabling shall be in accordance with manufacturer's recommendations. If the manufacturer's recommended cabling for equipment proposed cannot be accommodated in the conduit indicated in the contract documents without exceeding normal fill or code requirements, the Contractor shall furnish and install the additional required conduit without cost to the Owner.

D. All systems wiring shall be color-coded with labeling and coding as submitted and approved by shop drawing. Cabling shall be continuous and shall not be spliced between equipment. Color coding and tagging shall be maintained throughout the system at all accessible locations to the cabling.

E. Communication cables passing through any plenum space and not encased in steel conduits, must be plenum rated for their entire length.

F. AV system cabling shall be divided into classes that may not be intermixed within a conduit or raceway. In certain cases, AV system cabling of different classes may pass through or terminate in a common enclosure provided that proper separation is maintained within the enclosure. AV system cabling shall not be intermixed with AC wiring within a conduit, raceway, or enclosure. Additionally AV system cabling shall not be intermixed with wiring related to any other trades or discipline including but not limited to; fire protection, HVAC, CATV, alarm, intercom, master clock, access control or other similar systems within a conduit, raceway or enclosure. Wiring classifications, type and minimum separations are listed on Sheet AV001.

G. All screw on terminals shall have crimp-on terminal lugs.

H. Wire ends and shield drain wires shall be covered with shrink tubing.

I. All cables in racks and custom panels shall be harnessed with suitable nylon tie wraps or Velcro straps in a vertical and horizontal configuration. Cables that break out from harnesses for connection shall be provided

with an adequate amount of slack cable for a service loop to provide access to equipment for servicing and adjustment. Provide cable support.

J. All audio signal wiring shall be installed using balanced lines. Provide balancing kit or install suitable transformers for all unbalanced equipment.

LABELING

A. All cables and wiring shall be logically, legibly, and permanently labeled for easy identification. Each wire shall be permanently marked with a number at each end. This applies to wire within a rack assembly as well as wire running in conduit. Labels on cables shall be adhesive strip type covered with clear heat-shrink tubing. Factory stamped heat shrink tubing may be used in lieu of the adhesive strip style label. Labels shall be printed and not manufactured wire numbers from books. Hand-written labels shall not be accepted.

B. Wiring designations shall be an alphanumeric code that is unique for each cable. Locate the cable designation at the start and end of each cable run and within 1-3 inches of the point of termination or connection. Label shall be printed in three lines so that the designator is visible from all angles. For cable runs that have intermediate splice points, the cable shall have the same designation throughout with and additional suffix to indicate each segment of the run. The AV Contractor shall determine and designate cable assignments. The overall system of wire designators shall be uniform throughout the entire project from sub-system to sub-system. Designator shall include information on the device name where it is from, the signal type, and the device name where it is going. Add cable designation codes to system schematic drawings included with Project Record Drawings.

C. Label each terminal strip with a unique identification code in addition to a numerical label for each terminal. Show terminal strip codes on system schematic drawings included with Project Record Drawings.

D. Provide adhesive labels on the rear of equipment where cables attach to indicate the designation of the cable connected at that point.

E. Install identification panel with 1/8”-high engraved characters on front of bank of equipment racks serving each space. Clearly identify the Project, AV Contractor, Architect, System Designer, and System Programmer in the following format:

PROJECT:	Western Technical College 319 Seventh Street North La Crosse, WI 54601 608-789-6030
SYSTEM DESIGNER:	Professional Audio Designs 11707B W. Dearbourn Ave. Wauwatosa, WI 53226 414-476-1011
SYSTEM PROGRAMMER:	Professional Audio Designs 11707B W. Dearbourn Ave. Wauwatosa, WI 53226 414-476-1011
AV CONTRACTOR:	Company Name Address Telephone

RACEWAYS AND PATHWAYS

A. Conduit requirements for AV systems cabling may differ from those of other trades. It is important that the Electrical Contractor become familiar with these specialized requirements.

B. All AV systems cabling shall be enclosed within metallic conduit or raceway for floor boxes and Standard back boxes. All AV systems conduit, raceway and standard enclosures shall be furnished and installed by Electrical Contractor according to drawings provided and in accordance with applicable provisions of Electrical Contractor.

C. Conduits for different AV cabling classifications must maintain minimum separations from each other and from other services. Conduits sizes and quantities shown on bid documents are minimums. Separate conduit runs specified in bid documents may not be combined for any purpose.

D. Assume all AV cabling to be in conduit and/or free air above ceiling for the purposes of this bid. Communication cables with a CM and CMR rating can be used in plenum spaces if they are encased in steel conduits. If changes are made to the pathway design, refer to Owner Data, Voice, Coaxial, and Fiber cabling policy for requirements.

E. Exposed cables shall be enclosed with surface raceway.

F. Conduit runs entering or exiting equipment racks shall be electrically isolated from the equipment rack by use of non-metallic bushings, a short run of non-metallic raceway, or other suitable means.

G. All raceway shown on the AV drawings is for AV cable, and is in addition to any conduit shown on any other drawings.

H. Routing of conduit shown for design intent only. Coordinate exact route based on field conditions.

I. The standard size for all AV conduits shall be 0.75" diameter unless otherwise noted. All exposed conduit shall be routed parallel or perpendicular to structure above.

J. All conduits shall be (EMT) Electrical Metal Tubing unless project standards specify something different or is required by code.

K. All Back box locations and connection for design intent only.

L. Follow good practice related to conduit installation. This includes allowable bend angle, pull distances, and assurance that the pathways are clear of debris and sharp edges.

EQUIPMENT RACKS

A. Equipment racks shall be assembled, wired, and tested in the AV Contractor's shop. No rack assembly will be allowed on site without being completely wired except for terminations of field wiring to the rack. The consultant reserves the right to review the racks at the Contractor's shop.

B. All equipment racks are to be grounded to the isolated ground bus and shall be isolated from all other building and conduit grounds.

C. The AV Contractor shall ensure that all equipment is installed with proper cooling and ventilation.

D. Assembled racks shall not to be brought to the construction site until necessary. Racks shall be protected from dust, construction debris and other job site hazards during the entire duration of the installation. For this project, racks must also be built off-site prior to installation due to the compressed availability of spaces.

E. AV Contractor shall thoroughly clean all racks and equipment contained therein upon completion of the project and just prior to turn over.

F. All interface panels shall be engraved. The identification of equipment controls at the rack shall be marked with an engraved plastic or metal label.

G. Security covers designed to limit tampering of preset levels shall conceal all rack-mounted equipment not requiring frequent adjustment. Blank and or vented panels shall be provided as needed to fill unused spaces in racks.

H. Final design of identification panel shall be approved by Owner before manufacturing.

AV CONTROL SYSTEM

A. The AV Control System shall be programmed by the independently contracted Control System Programmer. Control system, full system programming shall not be part of this bid.

B. The AV Contractor shall be responsible for creating a simple program with On/Off function for all devices, demonstrating proper feedback of power status from devices, to demonstrate that all control connections have been wired and terminated correctly. The AV Contractor shall demonstrate functions to Control System Programmer at a time scheduled between the two.

DIGITAL SOUND PROCESSOR SYSTEM

A. The DSP system shall be programmed by the independently contracted Control System Programmer. Full DSP programming shall not be part of this bid.

B. The AV Contractor shall be responsible creating a simple DSP file to demonstrate that inputs are receiving signal vial internal meters and demonstrate outputs are passing signal to correct locations via a test signal. This is to verify that wiring and terminations are correct.

AV NETWORK SWITCHES

A. General

a. The AV Contractor shall coordinate with Owner on Owner network standards prior to purchasing switches. Owner may require managed switches even though unmanaged switches allow portions of the AV systems to function. Owner may also have campus standards of manufacturer and model.

b. The AV Contractor shall be responsible for providing AV network switches that comply with protocol standards of the devices the switches are intended to support. Not all AV protocols are detailed here and it shall be the AV Contractor's responsibility to ensure switch selection meets manufacturer's specifications for specified or substituted equipment (e.g. AVB or Cobranet).

B. Digital Video Systems and Control Systems

a. Managed switches shall be provided with gigabit (1Gbps) Base-T Ethernet ports and non-blocking layer-2 functionality. Ports shall be able to provide a maximum of 34.2 Watts PoE.

b. Where specified, switches requiring PoE shall support Type 1 PoE, Class 0-3 power sourcing on Ethernet ports and Type 2 PoE+, Class 4 power sourcing on Ethernet ports. The AV Contractor shall refer to the schematics for the number of ports require PoE and shall be responsible for verifying switch will be capable of power sourcing the number of ports simultaneously.

c. The AV Contractor shall provide a brush grommet panel above or below switch, if Ethernet ports connected on the front face of network switch when mounted in an equipment rack.

C. Dante Network Switch

a. Dante Network Switches, where specified, shall have 24 Ethernet Ports with gigabit (1Gbps) and 1.488Mpps packet forwarding rate at minimum. Dante Switches shall be non-blocking layer-2 managed

switches supporting DiffServe (DSCP) Quality of Service (QoS) with strict priority and four (4) queues per port.

b. The AV Contractor shall be responsible for confirming that all ports are capable of simultaneous gigabit transfer and capable of switching off Energy Efficient Ethernet (EEE) and other power-saving features.

c. The AV Contractor shall configure DiffServe (DSCP) QoS to give top priority to the Dante clock synchronization and audio data the next highest priority.

d. VLAN's shall be used to separate virtual networks for audio and non-Dante data over same network. Multicast transmissions may be required for audio sent to multiple Dante devices. To minimize unnecessary duplication of audio streams in multicast, Internet Group Management Protocol (IGMP) shall be enabled in the Dante Controller software.

e. Where specified, for switches located over long distances, a switch shall be capable of supporting optical modules.

f. For full setup details, the AV Contractor shall refer to Yamaha and Audinate support documents.

D. Q-Lan Network Switch

a. Q-Lan is a specific network protocol for QSC Q-Sys products. Where such products are specified, Q-Lan Network Switches shall have 24 Ethernet Ports with gigabit (1Gbps) at minimum with packet forwarding decision time of 10 ms or less. Switches shall be non-blocking layer-3 manage switches supporting DiffServe (DSCP) Quality of Service (QoS) with four (4) queues per port.

b. The AV Contractor shall supply a Q-Lan Network switch from the list of certified switches provided by QSC (http://qsc.com/solutions/q-sys/qualified-switches/). The AV Contractor shall be responsible for complying with QSC's guidelines if a non-listed substitution is provided.

c. For full setup details, the AV Contractor shall refer to QSC's support documents.

EQUIPMENT GROUNDING

A. Maintain an isolated, insulated grounding scheme throughout the entire system. Isolate equipment racks from raceway or building steel by use of non-metallic bushings or other suitable means. Do not connect metallic raceway of any type to equipment racks. This includes but is not limited to AC power and AV conduits. Ground equipment racks using #6 stranded copper wire connected only to isolated technical ground buss and bonded to equipment rack ground buss.

B. Isolate equipment racks from floor by use plywood sheeting. Paint all six surfaces of the plywood with fire retardant paint. Isolate equipment rack AC receptacles from equipment rack by use of isolated ground receptacles. Connect receptacle-isolated grounds only to isolated technical ground buss.

AV SYSTEMS CLEAN POWER

A. Maintain isolated ground, clean power scheme. Do not use installation methods, practices that may compromise AV systems isolated ground, clean power scheme. Complete description and specifications for AV systems isolated ground clean power system are under other sections.

WORK IN OTHER SECTIONS

A. The division of responsibility regarding work to be done by the Electrical Contractor, Owner, and work to be done by the AV Contractor is outlined on the table on Sheet AV001.

B. In coordinating the AV work with the Electrical Contractor, the AV Contractor shall bear in mind that the wiring and conduit requirements called for in the construction documents are based on the requirements of a single manufacturer and may or may not be adequate for the equipment actually being furnished. The conduit and wiring indicated on the drawings or in the specifications shall be considered minimum requirements.

SPECIFIC TECHNICAL REQUIREMENTS

A. DigitalMedia System
   a. Provide DigitalMedia Test reports for each system.
   b. Adjust DigitalMedia transmitters and receivers for proper EDID tables and resolutions confirmed with owner devices.
   c. DigitalMedia Receivers shall be set to maintain aspect ratio.
   d. Transmitters shall be set to auto switch between Digital and Analog inputs.
   e. Provide Consultant and Owner with complete list of all IP address and instruct Owner on basic DigitalMedia system troubleshooting over the network.
   f. Adherence to Crestron HD-DTDS specifications.
   g. Coordinate V-LAN'S and IP schemes with owner.

B. Flat-Panel Video Display Monitors
   a. Power connections provided to backbox by Electrical Contractor. Data/Digital video connection provided by AV Contractor.
   b. AV Contractor shall supply appropriate wall mount bracket.
   c. AV Contractor shall install, terminate, and test the Flat-Panel Video Monitors.
   d. Monitor installation shall meet ADA guidelines.
   e. Provide cable pass thru or demark panels for each cable at backbox as indicated on drawings.
   f. AV Contractor shall confirm final mounting height and mounting locations with owner prior to installing displays.
   g. AV Contractor shall confirm display size with Owner prior to ordering displays.

C. Input/Output Panels
   a. Coordinate color with Architect.
   b. Confirm nomenclature of engraved labels with Consultant and Owner prior to ordering.
   c. Confirm number sequence of inputs and outputs with Consultant and Owner prior to ordering.

D. Ceiling Speakers
   a. Speakers are existing. AV Contractor shall be responsible for replacing wiring, if visual inspection determines existing wire is in a current state of inadequacy. Otherwise, existing speakers and wiring shall remain in place.

E. Amplifiers
   a. Install manufacturer-provided security covers over all amplifier gain knobs.
   b. Label each amplifiers with which speakers/locations its amp channels are driving.
   c. Set gain levels for appropriate gain structure and maximum range of system volume.

F. Floor Boxes
   a. Verify fit of all panels to be installed in floor boxes prior to installation.
   b. Screw all plates into floor pocket.
   c. Provide blank plates for any unused gangs.

G. Projectors
   a. Projectors are existing projector. During installation projectors may be moved. The AV Contractor shall be responsible for ensure that images line up with screen and are calibrated correctly.

H. Projector Screens
   a. AV Contractor shall be responsible for integrating new control system with existing projector screens.
   b. AV Contractor responsible for final trim adjustment of screens.

I. Equipment Racks
   a. AV Contractor shall be responsible for coordinating all equipment to be mounted in equipment racks.
   b. Provide appropriate ventilation to ensure internal temperate stays below 85 degrees Fahrenheit during system operation. Provide rack fans if required.

J. Control System
   a. AV Contractor will not be responsible for programming the touch screens or lights. This shall be the responsibility of the Control System Programmer.
   b. AV Contractor shall be responsible for demonstrating, via a simple program, that commands and feedback function properly, only to demonstrate wiring and terminations are correct.
   c. Due to the division of responsibility, regular coordination meetings (phone/web/in-person) shall be required between the AV Contractor and Control System Programmer.

MAINTENANCE AND OTHER MANUALS

A. The AV Contractor shall maintain a file specific to this project that shall include all AV maintenance manuals, approved shop drawings and other pertinent information. This file shall be maintained for a period of time consistent with the length of time the equipment provided is in actual service. Documents shall be of such a nature that they may be reproduced to replace similar documents in possession of the Owner at Owner's expense.

COMMISSIONING

A. The AV Contractor shall be responsible for conducting tests to determine systems conformance to requirements of the specifications. TESTS SHALL BE CONDUCTED PRIOR TO THE ARRIVAL OF THE CONSULTANT FOR COMMISSIONING. AV Contractor shall pay consultant at consultant's normal rate plus expenses for any additional time required due to contactors failure to demonstrate compliance with any part of the specification.

B. The AV Contractor shall provide at least one qualified technician, familiar with all aspects of the project, for a minimum of eight (8) work hours, or as long as may be needed to verify compliance with all provisions of the specification on the day of commissioning. THE AV CONTACTOR SHALL BE RESPONSIBILE FOR ARRANGING A DATE MUTUALLY ACCEPTABLE TO AV CONSULTANT AND OWNER FOR COMMISSIONING. Arrangements shall include access to all necessary areas, parking within reasonable walking distance, and a minimum of eight hours of un-interrupted quiet time. Arrangements for testing must be made with the Owner and AV Consultant at least two (2) weeks before the proposed testing date. The AV Consultant may at their sole discretion, suspend commissioning at any time the project has been determined that it is not made ready for commissioning, until such time as compliance can be demonstrated.

C. The AV Contractor shall be prepared to make adjustments to system components at AV Consultant's direction during commissioning, without additional charge.

D. The AV Contactor shall certify, a minimum five (5) days prior to commissioning, that the installation is complete as outlined in bid, and is in compliance with the specification in its entirety. Certification shall include a *test report* as described in the next paragraph. Items listed in the *test report* shall be submitted prior to commissioning as it may delay the process. Any delays due to missing information or incorrect test reports shall be the responsibility of the AV Contractor.

E. Test Report shall include the following items:

   a. **Wire List:** Confirm that each individual wire and cable run (whether in a rack or in conduit) is identified with a unique number. These numbers are affixed at both ends and are clearly visible. Provide a complete list of these numbers including their termination location, their signal classification, and relevant test data. Wire list shall be considered part of as built documents and must be provided to consultant prior to system commissioning.

i) For all mic lines, tie lines, return lines and speaker lines confirm and document the following relevant test data:
   (1) Proper circuit appearing at each termination location.
   (2) Continuity of all conductors.
   (3) Proper polarity is maintained.
   (4) Absence of shorts between conductors.
   (5) Absence of shorts between conductors and raceway and ground.

ii) For all video lines confirm and document the following relevant test data:
   (1) Continuity of all conductors.
   (2) Absence of shorts between conductors.
   (3) Absence of shorts between conductors and conduit and ground.
   (4) HDCP passes on digital video connections, including HDMI cables.
   (5) HDMI cables pass signal at higher-resolution

iii) For all digital audio and video lines, including data or fiber optic cable, the following relevant test data:
   (1) Continuity of all conductors for each line
   (2) Absence of cable faults or breaks
   (3) Adequate bandwidth for signal, per manufacturer source signal

iv) Documentation to include a spread sheet with applicable data.

b. **Digital Video Report**: For all Crestron™ DigitalMedia™ systems deployed in this project, the AV Contractor shall provide a full System Report for each AV System.

c. **Verification Checklist**: Provide a verification checklist for each space or system:

i) Verify that all loudspeakers and mountings are free of buzzes and rattles when swept with sign wave tones throughout its rated bandwidth at normal levels.

ii) Verify that correct polarity is maintained throughout the entire signal path.

iii) Provide notification to AV Consultant prior to punch-out of any equipment that is malfunctioning.

iv) Listen to all audio systems to verify that they are free of any obvious hum, buzz, feedback, interference, spurious oscillations, digital artifacts, or extraneous noises of any kind.

v) Verify uniformity of sound coverage throughout intended coverage area. Sound level readings and frequency response shall be taken and plotted on a plan view of the room. Frequency response +/- 2dB averaged throughout the entire student seating area at seated ear height on one-third octave centers within pass band of speakers.

vi) Verify with the AV Consultant measurement locations, conditions, and measurement criteria.

vii) Verify proper aiming, focus and image size for projectors, as they may be moved or removed for ease of installation.

viii) Verify EDID settings reflect the native resolution for each projector, display, video codec, or other sinks. Record the EDID table for each source and sink for Owner's record.

ix) Verify brightness and correct color balance of each newly installed projected image and display image using SENCORE CP5000 display analyzer system or equivalent. Record settings of each device adjusted for Owner's records.

x) For each installed data network cable, HDBaseT cable, 8G+ cable, or fiber optic cable terminated by the AV Contractor, verify conformity to TIA/EIA performance standards.

xi) For each controllable device, verification for discrete on/off commands and device feedback (where available, shall be documented.

FUNCTIONAL PERFORMANCE VERIFICATION

A. The AV Contractor shall provide Owner and AV Consultant with verification checklist confirming that everything on the test plan has been completed. The AV contractor shall demonstrate functional performance verification during training (see section Training), where complete, to verify compliancy. This includes everything listed in articles Systems Descriptions, ~~AV Control Systems, Digital Signal Processor Systems,~~ and Specific Technical Requirements and all other content in Parts 2 and 3.

TRAINING

A. The AV Contractor and Control System Programmer shall conduct group and/or individual training sessions for the proper operation and maintenance of the complete system. The AV Contractor should, to their benefit, coordinate training sessions with Control System Programmer.

B. All labor and materials required for on-site training shall be provided as defined in the previous section. Training shall be conducted at the project site using the project equipment for each unique system.

C. Training must cover, at minimum, the following items:

a. User Manual: The AV Contractor shall go over the manual outlined in Section 1, Maintenance and Operating Manuals, detailing the system functions. The Control Systems Programmer shall review control system operations for each AV system.

b. Technical User: The Control System Programmer shall provide configuration training on equipment and software to Owner's Technical Users.

c. Maintenance User: The AV Contractor shall provide training on all physical maintenance of systems, including cleaning of displays, bulb changes, filter cleaning, and filter changing.

D. Minimum on-site training times shall be:

a. User Manual: Four (4) hours

b. Technical User: Three (3) hours

c. Maintenance User: One (1) hours

EVENT SUPPORT

A. In addition to the training listed above, the AV Contractor shall provide a total of up to eight (8) hours of on-site technical assistance for an Owner requested event. The Control System Programmer shall also be on hand for any assistance required that may result from software design. The event is expected to occur within the first sixty (60) days after system has been commissioned.

WARRANTY

A. On-the-premises service, parts and labor shall be provided by AV Contractor during normal working hours at no cost to the Owner, for a period of 12 months from the date of final acceptance. This shall not supersede any manufacturer's equipment warranties still in effect after 1 year. Warranty period shall commence at substantial completion as declared by Construction Manager or first beneficial use of system by Owner whichever comes

first. During the warranty period, AV Contractor shall furnish on site diagnostic and repair service to installed AV systems free of charge to Owner. Contractor shall respond to service requests within 24 hours. Contractor shall provide onsite diagnostic and repair service within two business days of trouble report. Contractor shall make available after hours or weekend service at a premium rate not to exceed 1.5 times normal hourly rates minus normal hourly rates. AV Contractor must also provide technical support via telephone at no charge during the warranty period. The AV Contractor shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the systems.

B. During the warranty period, the AV Contractor shall provide for three non-emergency service and maintenance calls by technically qualified personnel without additional charge. Calls shall be at least two hours at the site and shall be prearranged at least two weeks prior with the Owner

C. These service and maintenance calls shall be in addition to any warranty required service calls and shall commence every four (4) months after the date of final acceptance by the Owner. See sub-section Maintenance and Operating Manuals under section Submittals.

D. All tests, adjustments, or replacements shall be made in the presence of Owner's technician, or other person designated by the Owner’s Representative. Upon completion of each call a report will be provided to clearly indicate any replacements or adjustments and any evidence of tampering.

E. This project includes Owner provided equipment. Owner provided equipment is indicated in the Equipment Specification section of this document. AV Contractor shall provide the same warranty for Owner provided/AV Contractor installed equipment as for equipment provided directly from AV Contractor. Refer to Part I, section Scope, concerning how the AV Contractor shall receive Owner provided equipment.

F. All service calls pertaining to control system (e.g. alteration of buttons, non-responsive commands, etc) shall fall under the purview of the Control System Programmer.

END OF SECTION

SECTION 27 40 00
AUDIO-VISUAL SYSTEMS
APPENDIX B: CABLE SPECIFICATIONS

TYPE	DESCRIPTION	MFR	PART #	NOTES
MIC	22/2 Stranded tinned copper conductors, shielded with an overall jacket	Belden	9451	
LINE	22/2 Stranded tinned copper conductors, shielded with an overall jacket	Belden	9451	
SPK10	10 AWG twisted pair	Belden	1313A	
SPK12	12 AWG twisted pair	Belden	1311A	
SPK14	14 AWG twisted pair	Belden	1309A	
SPK16	16 AWG twisted pair	Belden	1307A	
CAT6	Cat 6 23 AWG solid 4 pair UTP bonded pairs	Belden	3632	
8G	DM-CBL-8G-P	Crestron	DM-CBL-8G-P	
LOW SKEW	23 AWG solid 4 pair skew-free	Extron	22-141-03	
ANT	RG-58, 20 AWG 50 Ohm COAX	Belden	8240	Antenna cable runs 50' or less
ANT	RG-8, 11 AWG 50 Ohm COAX	Belden	8214	Antenna cable runs 50' or greater
CTRL-1	22/2 Stranded tinned copper conductors, shielded with an overall jacket	Belden	9451	
CTRL-2	Single (1) pair 18 AWG and single (1) twisted pair 22 AWG with shield	Crestron	CRESNET-P	
HDMI	High speed HDMI cable	Crestron	CBL-HD	HDMI 20' or less. 1-1/4" minimum conduit size to pass HDMI connector.
HDMI	HDMI digital ribbon cable	FSR	DR-PCB-HXXB	HDMI 20' or greater. 1-1/4" minimum conduit size to pass HDMI connector.
VGA	Five (5) 26 AWG, 75 Ohm COAX in a single jacket	Extron	MHR-5	VGA 75' or less.
VGA	Five (5) 18 AWG, 75 Ohm COAX in a single jacket	Extron	RG6-5	VGA 75' or greater.
COMP	Five (5) 26 AWG, 75 Ohm COAX in a single jacket	Extron	MHR-5	Component video 75' or less.
COMP	Five (5) 18 AWG, 75 Ohm COAX in a single jacket	Extron	RG6-5	Component video 75' or greater
VIDEO	RG-6 18 AWG 75 Ohm COAX	Belden	1694A	
RS-232	24 AWG stranded, 8 conductor, overall shield	Belden	9538	
CATV	18 AWG solid RG6	Belden	9116	
NET	Single (1) pair 18 AWG and single (1) twisted pair 22 AWG with shield	Crestron	CRESTNET-NP	
COAX	RG-6 18 AWG 75 Ohm	Belden	1694A	

	COAX			
DTP	Four (4) individually shielded 26 AWG twisted pairs with overall shield	Extron	STP102	
IR	IR emitter	Generic		
USB	6" USB cable	Generic		Connection types vary and should be determined by devices' USB I/O ports.
DP	Data port cable	QSC	DPC-X	

SECTION 27 40 00
AUDIO-VISUAL SYSTEMS
APPENDIX C: BIDDING EQUIPMENT LIST

Appendix C Bidding Equipment List has been provided to the AV Contractor for use in preparing the bid response. The list includes AV components and peripherals for AV systems. The list includes major components and peripherals, but should not be considered all-inclusive. Itemized list includes the device name and generic description. Corresponding equipment specifications are listed below. See also Part 3 Execution, section title General, subsection D. Base equipment list is followed by bid alternate equipment lists.

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Base Equipment List

System	QTY	MANUFACTURER	MODEL	DESCRIPTION
DZA RACK	1	ATLONA	ATNO-HD420	HDMI - VGA/Component Converter
	1	CISCO	SG300-10	DANTE SWITCH
	1	FOSTEX	RM-2	RACK MOUNT STEREO MONITOR
	1	HP	J9777A	HP 2530-8G SWITCH FOR Q-LAN
	1	MIDDLE ATLANTIC	MPR-9A	80" MPR Series Modular Power Raceway Chassis
	6	MIDDLE ATLANTIC	M-20IGA	20 Amp MPR Duplex Isolated Ground Module
	4	MIDDLE ATLANTIC	RLM-20IGA	20 Amp MPR Controlled Module with Isolated Ground
	1	MIDDLE ATLANTIC	M-2X20IGA	20 Amp Double Duplex Isolated Ground MPR Module
	1	MIDDLE ATLANTIC	CC-44-312	Cable Chase, 44 RU, 31" to 32"D
	1	MIDDLE ATLANTIC	WRK-44-32	WRK Series Rack, 44 RU, 32"D
	1	MIDDLE ATLANTIC	MW-4QFT-FC	Fan Top, 220 CFM, w/Controller
	1	MIDDLE ATLANTIC	VBK-W27-W32	Vent Blocker Kit, WRK 27"/32" Deep
	1	MIDDLE ATLANTIC	LF-ISO	Leveling Feet, Isolating
	1	MIDDLE ATLANTIC	SPN-44-312	Side Panels, 44 RU, 31-32"D Racks
	1	MIDDLE ATLANTIC	PD-415R-SP	15A Surge Suppresor - 1/2 RU, 4 Receptacle
	1	MIDDLE ATLANTIC	Blank / Custom	Custom Blank Module w/ Powercon In from UPS
	1	MIDDLE ATLANTIC	PD-815R-PL	Power Distribution
	1	MIDDLE ATLANTIC	UPS-1000R	UPS Rackmount Power, 8 Outlet, 750W
	1	PANDUIT	CPPL48WBLY	NETWORK PATCH PANEL
	1	QSC	CORE 500I	AUDIO DSP
	5	QSC	CIML4	Four Channel mic/line input card
	2	QSC	COL4	Four Channel mic/line output card
	1	QSC	CDN64	DANTE CARD
	1	QSC	I/O FRAME 8S	AUDIO I/O FRAME #1
	5	QSC	CIML4	Four Channel mic/line input card
	2	QSC	COL4	Four Channel mic/line output card
	1	QSC	I/O FRAME	AUDIO I/O FRAME #2
	4	QSC	COL4	Four Channel mic/line output card
	1	QSC	CXD4.3Q	Q-Lan 4 Channel Amplifier
	7	RDL	STD-10K	Stereo to Mono Summing Unit
	1	RDL	DRA-35S6	Din Rail Adapter for 6 Stick-On Units

DZB RACK	2	CRESTRON	USB-EXT-DM-LOCAL	USB extender module for host
	1	CRESTRON	DM-MD32X32	32x32 DigitalMedia™ Switcher
	11	CRESTRON	DMC-C	DigitalMedia 8G+™ Input Card for DM® Switchers
	7	CRESTRON	DMC-4K-HD	4K HDMI® Input Card for DM® Switchers
	7	CRESTRON	DMC-4K-CO-HD	2-Channel 4K DigitalMedia 8G+• Output Card for DM® Switchers
	6	CRESTRON	DMC-HDO	2-Channel HDMI® Output Card for DM® Switchers
	3	MARSHALL	VS-102-HDMI/VS-102-HDI	HD Media Streaming Solution
	2	CRESTRON	DMC-VID-BNC	Analog Video BNC Input Card
	1	CRESTRON	PRO3	3-Series Control System®
	1	CRESTRON	C3RY-8	3-Series™ Control Card – 8 Relay Ports
	1	CRESTRON	C3COM-3	3-Series™ Control Card – 3 COM Ports
	1	CRESTRON	TSW-1052-B-S	10.1” Touch Screen, Black Smooth
	1	MIDDLE ATLANTIC	MPR-9A	80" MPR Series Modular Power Raceway Chassis
	5	MIDDLE ATLANTIC	M-20IGA	20 Amp MPR Duplex Isolated Ground Module
	1	MIDDLE ATLANTIC	RLM-20IGA	20 Amp MPR Controlled Module with Isolated Ground
	1	MIDDLE ATLANTIC	M-2X20IGA	20 Amp Double Duplex Isolated Ground MPR Module
	1	MIDDLE ATLANTIC	MPR-SEQ-1CA	Standalone 6-Channel Sequencer with Dry Contact Output
	1	MIDDLE ATLANTIC	WRK-44-32	WRK Series Rack, 44 RU, 32"D
	1	MIDDLE ATLANTIC	MW-4QFT-FC	Fan Top, 220 CFM, w/Controller
	1	MIDDLE ATLANTIC	VBK-W27-W32	Vent Blocker Kit, WRK 27"/32" Deep
	1	MIDDLE ATLANTIC	LF-ISO	Leveling Feet, Isolating
	1	MIDDLE ATLANTIC	PD-415R-SP	15A Surge Suppresor - 1/2 RU, 4 Receptacle
	1	MIDDLE ATLANTIC	PD-815R-PL	Power Distribution
	2	VADDIO	AV BRIDGE CONFERENCE	HD Media Streaming Solution
	7	CRESTRON	DM-RMC-SCALER-C	DigitalMedia 8G+• Receiver & Room Controller w/Scaler
	3	VADDIO	WALLVIEW HD-22	HD PTZ CAMERA SYSTEM w/ CCU
	1	VADDIO	535-2000-296	Off-Set Drop Down Mount for WallVIEW HD-22
LECTERNS A, B	2	MIDDLE ATLANTIC	PD-2015R-HH-NS	Power Distribution
	2	CRESTRON	TSW-752-B-S	7" TOUCHSCREEN
	2	CRESTRON	HD-RX3-C-B	4K HDMI® over HDBaseT® Receiver, Black
	2	CRESTRON	DMPS3-4K-150-C	Presentation switcher
	2	KEY DIGITAL	KD-1X2CS	1X2 HDMI distribution amp
	2	HP	1910-8-PoE+ (JG537A)	8-port switch, 4 ports POE
	2	RDL	TX-J2	UNBALANCED INPUT TRANSFORMER
	2	STEWART AUDIO	NET-AV I/O 2X2	
LECTERNS C, D, E, F	4	MIDDLE ATLANTIC	PD-2015R-HH-NS	Power Distribution

	4	CRESTRON	TSW-752-B-S	7" TOUCHSCREEN
	4	CRESTRON	DMPS3-4K-150-C	Presentation switcher
	4	KEY DIGITAL	KD-1X2CS	1X2 HDMI distribution amp
	4	HP	1910-8-PoE+ (JG537A)	8-port switch, 4 ports POE
	4	RDL	TX-J2	UNBALANCED INPUT TRANSFORMER
	4	STEWART AUDIO	NET-AV I/O 2X2	
ROOM 106	1	AUDIX	M3W	HANGING MIC
	1	CHIEF	PAC526FW	In-wall storage box with white flange
	1	CHIEF	XTMU	Display Mount
	2	COMMUNITY	DP6	PENDANT SPEAKER
	1	CRESTRON	TSW-752-B-S	7" TOUCHSCREEN
	1	CRESTRON	TSW-750-TTK-B-S	Table-top kit for 7" touchscreen
	1	CRESTRON	DM-TX-401-C	DM transmitter
	1	CRESTRON	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+• Receiver & Room Controller w/Scaler
	1	MIDDLE ATLANTIC	PD-815R-PL	Power Distribution
	1	SHARP	LC-80LE650U	80" LED Smart TV, 1080p
ROOM 107	1	AUDIX	M3W	HANGING MIC
	1	CHIEF	PAC526FW	In-wall storage box with white flange
	1	CHIEF	XTMU	Display Mount
	1	CHIEF	FCA810	8" Above/Below Shelf for XTMU
	2	COMMUNITY	DP6	PENDANT SPEAKER
	1	CRESTRON	TSW-752-B-S	7" TOUCHSCREEN
	1	CRESTRON	TSW-750-TTK-B-S	Table-top kit for 7" touchscreen
	1	CRESTRON	DM-TX-401-C	DM transmitter
	1	CRESTRON	USB-EXT-DM-REMOTE	USB extender module for remote
	1	CRESTRON	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+• Receiver & Room Controller w/Scaler
	1	SHARP	LC-80LE650U	80" LED Smart TV, 1080p
	1	VADDIO	WideSHOT QSR	HD Camera, Fixed
ROOM 108	1	AUDIX	M3W	HANGING MIC
	1	CHIEF	PAC526FW	In-wall storage box with white flange
	1	CHIEF	XTMU	Display Mount
	1	CHIEF	FCA810	8" Above/Below Shelf for XTMU
	2	COMMUNITY	DP6	PENDANT SPEAKER
	1	CRESTRON	TSW-752-B-S	7" TOUCHSCREEN
	1	CRESTRON	TSW-750-TTK-B-S	Table-top kit for 7" touchscreen
	1	CRESTRON	DM-TX-401-C	DM transmitter
	1	CRESTRON	USB-EXT-DM-REMOTE	USB extender module for remote
	1	CRESTRON	DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+• Receiver & Room Controller w/Scaler
	1	SHARP	LC-80LE650U	80" LED Smart TV, 1080p
	1	VADDIO	WideSHOT QSR	HD Camera, Fixed

Bid Alternate #1: AV Bridge Package

System	QTY	MANUFACTURER	MODEL	DESCRIPTION
Lectern - Area A	1	VADDIO	AV BRIDGE CONFERENCE	HD Media Streaming Solution
Lectern - Area B	1	VADDIO	AV BRIDGE CONFERENCE	HD Media Streaming Solution

Bid Alternate #2: Assistive Listening Receivers

System	QTY	MANUFACTURER	MODEL	DESCRIPTION
Assistive Listening	24	LISTEN	LR-500	Digital Receiver, Portable
	24	LISTEN	LA-361	Pair of AA Batteries
	24	LISTEN	LA-164	Ear Speaker
	6	LISTEN	LA-166	Neck Loop
	6	LISTEN	LT-800	Assistive Listening Transmitter
	6	LISTEN	LA-123	90° Antenna
	6	CUSTOM		Antenna Plate

Bid Alternate #3: Portable Digital Video Transmitter and Receiver

System	QTY	MANUFACTURER	MODEL	DESCRIPTION
LOOSE EQUIPMENT	6	Crestron	CBL-HD-6	6' HDMI CABLE
	1	CRESTRON	DM-TX-401-C	Portable Transmitter
	1	CRESTRON	DM-RMC-SCALER-C	Receiver Confidence Monitor

Bid Alternate #4: Atrium Digital Video Scaler

System	QTY	MANUFACTURER	MODEL	DESCRIPTION
Add Atrium Scaler	1	Crestron	DM-RMC-SCALER-C	DM Receiver
	1	Crestron	DMC-4KO-HD	DM Output Card

Bid Alternate #5: XM Radio Systems

System	QTY	MANUFACTURER	MODEL	DESCRIPTION
Add XM tuners	3	CRESTRON	C2N-TXM	XM Satellite Radio Tuner
	1	CRESTRON	SRD-ANT-8-PAK	Satellite Radio Antenna System, 8-way
	3	RDL	TX-J2	UNBALANCED INPUT TRANSFORMER
	3	RDL	DRA-35T	Din Rail Adapter for TX-Series Units
	1	CRESTRON	CNTBLOCK	Cresnet Distribution Block

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AV SYSTEMS BID DOCUMENTS

MARCH 20, 2015

SHEET INDEX	
AV000	INDEX SHEET
AV001	AV NOTES - GENERAL
AV002	AV NOTES - KEY SCHEDULES, ABBREVIATIONS
AV003	AV NOTES - TERMINATIONS, WIRING DETAILS
AV101	AV DEMOLITION PLAN
AV102	AV DEMOLITION DETAILS - FOUNDER'S HALL
AV103	AV DEMOLITION DETAILS - LECTERNS
AV104	AV DEMOLITION DETAILS - ROOMS 106, 107
AV105	AV DEMOLITION DETAILS - ROOM 109
AV106	AV DEMOLITION DETAILS - ROOM 108, ATRIUM
AV201	OVERALL FLOOR PLAN
AV202	SPEAKER LAYOUT
AV501	EQUIPMENT ELEVATIONS
AV601	I/O, RACK PANELS
AV701	AUDIO SCHEMATICS - I/O
AV702	AUDIO SCHEMATICS - LOUDSPEAKERS
AV711	VIDEO SCHEMATICS - MATRIX INPUTS 1-16
AV712	VIDEO SCHEMATICS - MATRIX INPUTS 17-32
AV713	VIDEO SCHEMATICS - MATRIX OUTPUTS 1-16
AV714	VIDEO SCHEMATICS - MATRIX OUTPUTS 17-32
AV715	LECTERN SCHEMATICS
AV721	NETWORK, CONTROL SCHEMATICS
AV731	POWER SCHEMATICS

AV SYSTEMS CONSULTANT

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CONDUITS AND CABLE TYPES FOR AV SYSTEMS MUST BE COORDINATED TO PREVENT ELECTRICAL INTERFERENCE WITHIN THOSE SYSTEMS. ALL WIRING AND CABLING FOR AV SYSTEMS MUST BE CONTAINED IN CONTINUOUSLY GROUNDED FERROUS METALLIC CONDUITS, EXCEPT WHERE NOTED. PVC CONDUITS ARE NOT AN ACCEPTABLE SUBSTITUTION EXCEPT WHERE USE OF PVC CONDUITS IS REQUIRED BY CODE. CONDUITS MUST BE SIZED, SPACED, AND UTILIZED ACCORDING TO CONDUIT SIZING REQUIREMENTS, ROUTING AND SEPARATION, AND GROUP DIVISIONS.

1 AV CONDUIT REQUIREMENTS

SIZING OF CONDUIT TO BE BASED ON NEC (NATIONAL ELECTRICAL CODE) REQUIREMENTS. MINIMUM CONDUIT SIZE FOR AV CABLING TO BE 3/4".

APPROPRIATELY SIZED AND LOCATED PULL BOX THAT ACCOMMODATES BEND RADII OF CABLE TO BE ADDED IF:

A) MORE THAN TWO 90° BENDS IN CONDUIT RUN.
OR
B) CONDUIT RUN EXCEEDS 100 FEET IN LENGTH.

FOR CONDUIT RUNS OF 50 TO 100 FEET:

A) NUMBER OF CABLES TO BE REDUCED BY 15%.
OR
B) NEXT LARGER CONDUIT SIZE SHALL BE USED.

DETERMINATION OF CONDUIT SIZE FOR A PARTICULAR RUN OF AV CABLING SHALL BE MADE AS FOLLOWS:

1) SQUARE THE O.D. (OUTER DIAMETER) OF EACH CABLE AND TOTAL THE RESULTS (REFER TO CABLE MANUFACTURER'S SPECIFICATIONS FOR O.D.)

2) MULTIPLY THE TOTAL FROM STEP 1 BY THE FACTOR LISTED IN THE CONDUIT FILL TABLE:

NO. OF CABLES	% OF CONDUIT CROSS-SECTION ALLOWED FOR CABLES	FACTOR
1	53	.5927
2	31	1.0134
3+	40	.7854

3) FIND THE PERMISSIBLE AREA OF THE CONDUIT TYPE USED THAT IS EQUAL TO OR GREATER THAN TOTAL AREA CALCULATED IN STEP 2. REFERENCE CHAPTER 9 OF NEC FOR PERMISSIBLE AREA OF VARIOUS CONDUIT TYPES AND SIZES.

2 AV CONDUIT SIZING

AV SYSTEMS CONTAIN A VARIETY OF CABLES WITH A BROAD RANGE OF SIGNAL LEVELS. FOR THE PURPOSES OF PLANNING CONDUIT RUNS, CABLES ARE DIVIDED INTO GROUPS BY SIGNAL LEVEL. CABLES FROM DIFFERENT GROUPS MAY NOT BE RUN IN THE SAME CONDUIT, UNLESS INDICATED ON DRAWINGS.

GROUPS FOR CABLES ARE DEFINED AS FOLLOWS:

GROUP	CABLING TYPE
A	MICROPHONE LEVEL
B	LINE LEVEL
C	SPEAKER LEVEL INCLUDES LOW IMPEDANCE TYPES (2Ω, 4Ω, 8Ω, ETC.) INCLUDES HIGH IMPEDANCE TYPES (70V, 100V, ETC.)
D	CONTROL & DATA
E	VIDEO
F	FIBER OPTIC

3 AV CONDUIT GROUP DIVISIONS

TO MINIMIZE NOISE AND INTERFERENCE WITHIN AV SYSTEMS, PATHS THROUGH THE BUILDING FOR AV WIRE, CABLE, AND CONDUITS SHALL BE COORDINATED BY REFERENCING THE FOLLOWING TABLE AGAINST THE GROUP DIVISIONS TABLE:

GROUP CLASS	A	B	C	D	E	F
A	ADJACENT	6"	12"	12"	12"	ADJACENT
B	-	ADJACENT	6"	6"	6"	ADJACENT
C	-	-	ADJACENT	6"	6"	ADJACENT
D	-	-	-	ADJACENT	ADJACENT	ADJACENT
E	-	-	-	-	ADJACENT	ADJACENT
F	-	-	-	-	-	ADJACENT
POWER CONDUIT < 60A	24"	24"	24"	24"	24"	ADJACENT
POWER CONDUIT <120A	48"	48"	48"	48"	48"	ADJACENT
POWER CONDUIT>120A	64"	64"	64"	64"	64"	ADJACENT

CONDUIT CROSSINGS AT 90° ANGLES ARE PERMITTED.

DUE TO SENSITIVITY OF AUDIO-VIDEO SYSTEMS, HIGH CURRENT DEMANDS OR LONG PARALLEL CONDUIT RUNS MAY NECESSITATE LARGER SEPARATIONS BETWEEN CONDUITS.

4 AV CONDUIT ROUTING & SCHEMATIC

CABLE TYPE SCHEDULE

TYPE	DESCRIPTION	MFR	PART#	OUTER DIAMETER (INCHES)	MIN BEND RADIUS (INCHES)	NOTES
8G	DM-CBL-8G-P	CRESTRON	DM-CBL-8G-P	0.24	2.75	
ANT	RG-58, 20 AWG, 50Ω, COAX	BELDEN	8240	0.19	2.00	ANTENNA CABLE RUNS 50' OR UNDER
ANT	RG-8, 20 AWG, 50Ω, COAX	BELDEN	8214	0.40	4.00	ANTENNA CABLE RUNS 50' OR MORE
CAT6	CAT6 23 AWG SOLID 4-PAIR, UTP, BONDED PAIRS	BELDEN	3632	0.23	2.30	
CATV	18 AWG, SOLID, RG-6	BELDEN	9116	0.27	2.75	
COAX	RG-6 , 18 AWG, 75Ω, COAX	BELDEN	1694A	0.27	2.75	
COMP	(5) 26 AWG, 75Ω, COAX IN A SINGLE JACKET	EXTRON	MHR-5	0.36	3.50	COMPONENT VIDEO 75' OR UNDER
COMP	(5) 18 AWG, 75Ω, COAX IN A SINGLE JACKET	EXTRON	RG6-5	0.79	7.92	COMPONENT VIDEO 75' OR MORE
CTRL-1	22/2 STRANDED, TINNED COPPER CONDUCTORS, SHIELDED WITH OVERALL JACKET	BELDEN	9451	0.14	1.30	
CTRL-2	(1) PAIR 18 AWG, (1) TWISTED PAIR 22 AWG WITH SHIELD	CRESTRON	CRESNET-NP	0.25	2.50	
DATA	CAT5E 24 AWG SOLID BC UTP 4-PAIR, BONDED, PLENUM	BELDEN	1701A	0.20	2.00	
DM	(1) STP, (1) UTP, AND (1) DMNET	CRESTRON	DM-CBL-P	0.28	5.80	
DP	DATA PORT CABLE	QSC	DPC-X			
DTP	(4) INDIVIDUALLY SHIELDED 24 AWG, SOLID, TWISTED PAIRS WITH OVERALL SHIELD	EXTRON	XTP-DTP-24	0.25	2.75	
HDMI	HDMI CABLE	CRESTRON	CBL-HD	0.39	4.10	HDMI CABLES UP TO 20' IN LENGTH, MINIMUM 1-1/2" CONDUIT TO PASS CONNECTORS.
HDMI	HDMI CABLE	EXTRON	HDMI-M-M-PRO	0.47	4.50	HDMI CABLES 20' TO 50' IN LENGTH, MINIMUM 1-1/2" CONDUIT TO PASS CONNECTORS.
HDMI	HDMI CABLE, DIGITAL RIBBON	FSR	DR-PCB-H___M	0.20	7.00	HDMI CABLES OVER 50' IN LENGTH, MINIMUM 1-1/4" CONDUIT TO PASS CONNECTORS.
ICOM	(1) 18 AWG TWISTED PAIR, OVERALL SHIELD	BELDEN	8760	0.22	2.25	
IR	IR EMITTER					
LINE	22/2 STRANDED, TINNED COPPER CONDUCTORS, SHIELDED WITH OVERALL JACKET	BELDEN	9451	0.14	1.30	
LOW SKEW	23 AWG SOLID 4-PAIR, SKEW-FREE	EXTRON	22-141-03	0.28	2.80	
MIC	22/2 STRANDED, TINNED COPPER CONDUCTORS, SHIELDED WITH OVERALL JACKET	BELDEN	9451	0.14	1.30	
MIC-P-XX	MIC CABLE, PORTABLE, QUAD, XLR3M TO XLR3F, CANARE L4E6S WIRE	WHIRLWIND	MKQXX			IF XX IS SPECIFIED, CABLE TO BE XX' IN LENGTH PER WIRE TAG. OTHERWISE, CONTRACTOR TO DETERMINE APPROPRIATE LENGTH.
NET	(1) PAIR 18 AWG, (1) TWISTED PAIR 22 AWG WITH SHIELD	CRESTRON	CRESNET-NP	0.25	2.50	
RS-232	24 AWG, STRANDED, 8 CONDUCTOR, OVERALL SHIELD	BELDEN	9538	0.22	2.25	
SPK10	10/2 TWISTED PAIR	WEST PENN	HA210	0.28	2.70	
SPK12	12/2 TWISTED PAIR	BELDEN	1311A	0.35	3.50	
SPK14	14/2 TWISTED PAIR	BELDEN	1309A	0.26	2.70	
SPK16	16/2 TWISTED PAIR	BELDEN	1307A	0.21	2.10	
THHN#10	10 AWG THERMOPLASTIC HIGH HEAT-RESISTANT NYLON					
TBD	CONTRACTOR TO DETERMINE APPROPRIATE CABLE TYPE BASED ON FIELD CONDITIONS AND EQUIPMENT					
USB	6' USB CABLE					
VGA	(5) 26 AWG, 75Ω, COAX IN A SINGLE JACKET	EXTRON	MHR-5	0.36	3.50	VGA CABLES UNDER 75' IN LENGTH.
VGA	(5) 18 AWG, 75Ω, COAX IN A SINGLE JACKET	EXTRON	RG6-5	0.79	7.92	VGA CABLES OVER 75' IN LENGTH.
VIDEO	RG-6 18 AWG, 75Ω, COAX	BELDEN	1694A	0.27	2.75	

CONTRACTOR TO USE PLENUM-RATED CABLE AS NECESSARY.
ALL CEILINGS IN THIS PROJECT ARE PLENUM SPACES.

AUDIOVISUAL GENERAL NOTES

1 CONDUIT RISERS ARE DIAGRAMMATIC DRAWINGS. CONDUIT ROUTING TO BE DETERMINED BY INSTALLING CONTRACTOR.

2 BACKBOXES BEHIND DISPLAYS ARE SHARED BETWEEN AV, ELECTRICAL. TRADES SHALL COORDINATE TO CONFIRM CONDUIT LANDS IN APPROPRIATE LOCATIONS IN AV BOXES.

3 COORDINATE ALL CEILING MOUNTED DEVICES WITH REFLECTED CEILING PLANS PRIOR TO ROUGH-IN.

4 COORDINATE ALL AV DEVICE MOUNTING HEIGHTS AND LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.

5 CONFIRM CEILING AND WALL ACCESSIBILITY. ALL STUBS ABOVE CEILING AND JUNCTION BOXES SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS.

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SCOPE OF WORK DEMARCATION TABLE

SCOPE OF WORK	ELECTRICAL CONTRACTOR		AUDIOVISUAL CONTRACTOR		OWNER	
	FURNISHES	INSTALLS	FURNISHES	INSTALLS	FURNISHES	INSTALLS
POWER DISTRIBUTION SYSTEMS						
MAIN POWER SERVICE, CIRCUIT BREAKERS	X	X				
STANDARD PANELBOARDS, CIRCUIT BREAKERS	X	X				
STANDARD LOAD CENTERS, CIRCUIT BREAKERS	X	X				
COMPANY SWITCH, CIRCUIT BREAKERS	X	X				
CUSTOM SEQUENCING PANELBOARD, BREAKERS		X†	X			
ISOLATION TRANSFORMERS	X	X				
AC ELECTRICAL WIRING INFRASTRUCTURE						
WIRING	X	X				
CONDUIT	X	X				
TERMINATIONS		X				
TERMINATIONS OF AC ELECTRICAL TO WHIPS FOR EQUIPMENT RACKS		X†				
AC ELECTRICAL DISTRIBUTION WITHIN EQUIPMENT RACKS			X	X		
WALL RECEPTACLES	X	X				
AUDIO-VIDEO SYSTEMS WIRING INFRASTRUCTURE						
WIRING			X	X		
CONDUIT			X†	X†		
CONDUIT RISER			X			
PULL LINES IN ALL EMPTY CONDUITS			X	X		
TERMINATIONS				X		
WALL PLATES			X	X		
PULL BOXES			X	X†		
BUILDING DATA						
WIRING FROM BUILDING DATA TO CONNECTION IN PROXIMITY TO AUDIO-VIDEO EQUIPMENT			X†Δ			
TERMINATION OF BUILDING DATA CONNECTION AT AUDIO-VIDEO EQUIPMENT				X†Δ		
WIRING AND TERMINATION OF NETWORK WAP's	X	X				
BUILDING FIRE ALARM						
WIRING FROM BUILDING FIRE ALARM TO AUDIO-VIDEO EQUIPMENT	X†					
TERMINATION OF BUILDING FIRE ALARM CONNECTION TO AUDIO-VIDEO EQUIPMENT				X		
AUDIO-VIDEO SYSTEMS EQUIPMENT, DEVICES						
AUDIO-VIDEO EQUIPMENT			X	X		
EQUIPMENT RACKS			X	X		
STANDARD ELECTRICAL BACK BOXES			X†	X†		
SPECIALTY FLOOR, WALL, CEILING BOXES			X	X		
OWNER-FURNISHED EQUIPMENT				X†‡	X	

‡ INSTALLATION PER DIRECTION OF AUDIO-VIDEO CONTRACTOR.
† UNLESS SPECIFICALLY STATED OTHERWISE.
Δ OR BY RELEVANT CONTRACTOR.

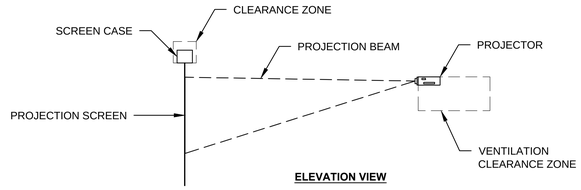
AV BOX TYPE SCHEDULE

BOX CLASS/TYPE	DESCRIPTION	MODEL
CB-3	FSR CB-22P	FSR CB-22P CEILING ENCLOSURE WITH PROJECTOR POLE MOUNT OR APPROVED EQUAL
CB-41	4" SQUARE W/ 1-GANG	4" SQUARE BOX WITH 1-GANG TRIM RING, MINIMUM 3" DEEP
CB-42	4" SQUARE W/ 2-GANG	4" SQUARE BOX WITH 2-GANG TRIM RING, MINIMUM 3" DEEP
WB-1	1-GANG MASONRY	RACO 695 1 GANG MASONRY BOX, 3-1/2" DEEP
WB-2	2-GANG MASONRY	RACO 696 2 GANG MASONRY BOX, 3-1/2" DEEP
WB-3	3-GANG MASONRY	RACO 697 3 GANG MASONRY BOX, 3-1/2" DEEP
WB-4	4-GANG MASONRY	RACO 698 4 GANG MASONRY BOX, 3-1/2" DEEP
WB-5	5-GANG MASONRY	RACO 699 5 GANG MASONRY BOX, 3-1/2" DEEP
WB-6	6-GANG MASONRY	RACO 965 6 GANG MASONRY BOX, 3-1/2" DEEP
WB-7	4 x 4 x 4	4" X 4" X 4" JUNCTION BOX
WB-8	6 X 6 X 4	6" X 6" X 4" JUNCTION BOX
WB-9	6 X 6 X 6	6" X 6" X 6" JUNCTION BOX
WB-10	8 X 8 X 6	8" X 8" X 6" JUNCTION BOX
WB-11	10 X 10 X 6	10" X10" X 6" JUNCTION BOX
WB-12	12 X 12 X 6	12" X 12" X 6" JUNCTION BOX
WB-13	14 X 14 X 6	14" X 14" X 6" JUNCTION BOX
WB-14	16 X 16 X 6	16" X1 6" X 6" JUNCTION BOX
WB-15	18 X 18 X 6	18" X 18" X 6" JUNCTION BOX
WB-16	18 X 18 X 8	18" X 18" X 8" JUNCTION BOX
WB-17	FSR PWB-270	FSR PWB-270 W/ COVER OR APPROVED EQUAL
WB-18	CHIEF PAC526FW	CHIEF PAC526FW OR APPROVED EQUAL
WB-19	24 X 24 X 6	24" X 24" X 6" JUNCTION BOX
WB-20	24 X 24 X 8	24" X 24" X 8" JUNCTION BOX
WB-21	30 X 30 X 8	30" X 30" X 8" JUNCTION BOX
WB-41	4" SQUARE W/ 1-GANG	4" SQUARE BOX WITH 1-GANG TRIM RING, MINIMUM 3" DEEP
WB-42	4" SQUARE W/ 2-GANG	4" SQUARE BOX WITH 2-GANG TRIM RING, MINIMUM 3" DEEP
WB-61	6" X 6" W/ 1-GANG	GARVIN 6350- X 6" X 6" SQUARE JUNCTION BOX 3-1/2" DEEP WITH 1-GANG DEVICE COVER RING OR APPROVED EQUAL
WB-62	6" X 6" W/ 2-GANG	GARVIN 6350- X 6" X 6" SQUARE JUNCTION BOX 3-1/2" DEEP WITH 2-GANG DEVICE COVER RING OR APPROVED EQUAL
WB-63	6" X 6" W/ 3-GANG	GARVIN 6350- X 6" X 6" SQUARE JUNCTION BOX 3-1/2" DEEP WITH 3-GANG DEVICE COVER RING OR APPROVED EQUAL
WB-64	6" X 6" W/ 1-GANG LANDSCAPE	GARVIN 6350- X 6" X 6" SQUARE JUNCTION BOX 3-1/2" DEEP WITH 1-GANG DEVICE COVER RING OR APPROVED EQUAL
FB-EX4	EXISTING FLOOR BOX - SMALL	WIREMOLD FLOORPORT SERIES FLOOR BOX - 4 COMPARTMENT
FB-EX6	EXISTING FLOOR BOX - LARGE	HUBBELL LARGE CAPACITY FLOOR BOX - 6 COMPARTMENT

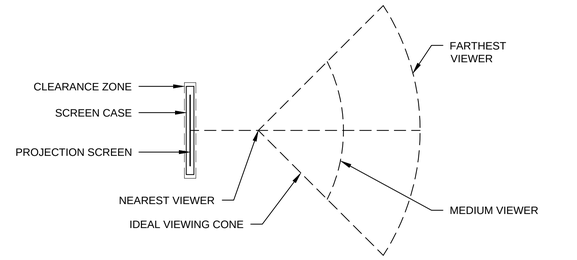
ABBREVIATIONS

AC	ALTERNATING CURRENT
ACT	ACOUSTICAL CEILING TILE
AFF	ABOVE FINISHED FLOOR
ALS	ASSISTED LISTENING SYSTEM
ALT	ALTERNATE
ARCH	ARCHITECTURAL
AUTO	AUTOMATIC
AV	AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CENTER
CCTV	CLOSED CIRCUIT TELEVISION
CCU	COLOR CORRECTION UNIT
CLG	CEILING
CTRL	CONTROL
DC	DIRECT CURRENT
DET	DETAIL
DIA	DIAMETER
DM	DIGITAL MEDIA
DSL	DOWNSTAGE LEFT
DSR	DOWNSTAGE RIGHT
DVR	DIGITAL VIDEO RECORDER
ELEC	ELECTRICAL
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ER	EQUIPMENT RACK
EXST	EXISTING
FLR	FLOOR
FP	FLOOR PLAN
GC	GENERAL CONTRACTOR
GND	GROUND
HD	HIGH DEFINITION
HID	HUMAN INTERFACE DEVICE
HL	HOUSE LEFT
HR	HOUSE RIGHT
I/O	INPUT / OUTPUT
IR	INFRARED
JB	JUNCTION BOX
KO	KNOCK-OUT
KV	KILOVOLT
KW	KILOWATTS
LAN	LOCAL AREA NETWORK
MIC	MICROPHONE
MIN	MINIMUM
MISC	MISCELLANEOUS
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFE	OWNER FURNISHED EQUIPMENT
OFOI	OWNER FURNISHED, OWNER INSTALLED
ORCH	ORCHESTRA / ORCHESTRAL
PC	PERSONAL COMPUTER
PDU	POWER DISTRIBUTION UNIT
PLBG	PLUMBING
PNL	PANEL
POE	POWER OVER ETHERNET
PWR	POWER
RCP	REFLECTED CEILING PLAN
REQD	REQUIRED
RF	RADIO FREQUENCY
RU	RACK UNIT
SIM	SIMILAR
SPEC	SPECIFICATION
STP	SHIELDED TWISTED PAIR
TV	TELEVISION
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
USL	UPSTAGE LEFT
USR	UPSTAGE RIGHT
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS / VOLTAGE
VoIP	VOICE OVER INTERNET PROTOCOL
W/	WITH

NOTE: NOT ALL ABBREVIATIONS LISTED MAY BE USED IN PROJECT. LIST MAY NOT BE COMPREHENSIVE OF ALL ABBREVIATIONS USED IN PROJECT.



ELEVATION VIEW



PLAN VIEW

AV KEY
NTS

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LA CROSSE, WI 54601

DESIGNED BY: NC / MN
ISSUE DATE: 2015-03-20
SCALE: NTS
DRAWING SET SIZE: 30" x 42"
DOCUMENT SET: BID DOCUMENTS

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
SCHEDULES, KEYS, & ABBREVIATIONS

SHEET NUMBER: AV002
REV:

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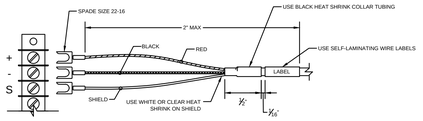
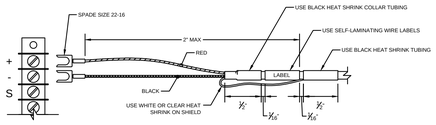
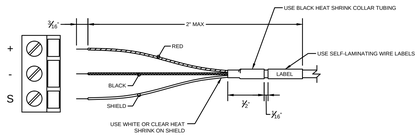


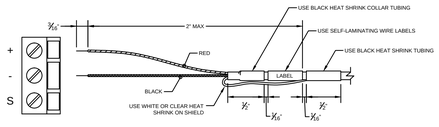
SPADE LUG AND SCREW TERMINAL STRIP



SPADE LUG AND SCREW TERMINAL STRIP
SHIELD LIFTED

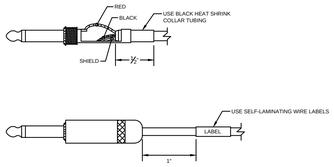


SCREW TERMINAL CONNECTOR

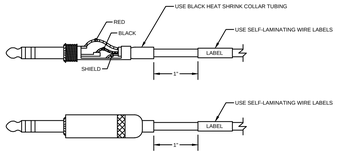


SCREW TERMINAL CONNECTOR
SHIELD LIFTED

MALE PHONO (RCA) CONNECTOR

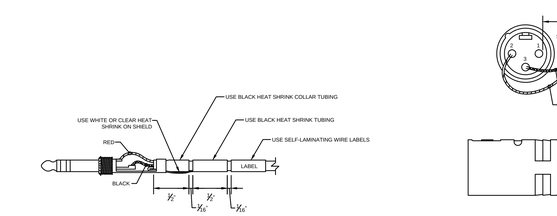


1/4" TIP SLEEVE

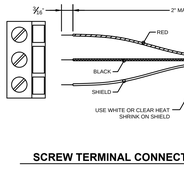


1/4" TIP RING SLEEVE (TRS) CONNECTOR

1/4" TIP RING SLEEVE (TRS) CONNECTOR
SHIELD LIFTED



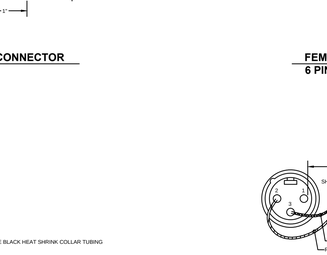
1/8" TRS STEREO CONNECTOR
UNBALANCED TO BALANCED



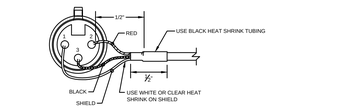
BNC CONNECTOR (TYPICAL 3 PIECE)

SPEAKON CONNECTOR NL8 TYPE

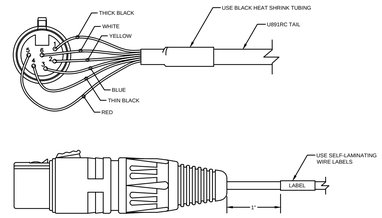
SPEAKON CONNECTOR
8 CONTACT



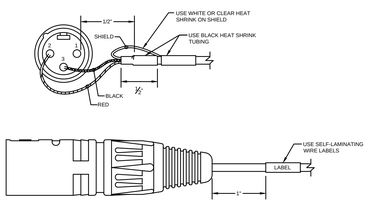
NL4 CONNECTOR



FEMALE XLR CONNECTOR



FEMALE XLR CONNECTOR
6 PIN



MALE XLR CONNECTOR
SHIELD LIFTED

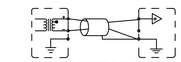
NOTE:
1. WIRE LABEL SHALL BE APPLIED TO CABLE WITH TEXT STARTING CLOSEST TO CONNECTOR.
2. RCA AND 1/4" PHONE CONNECTORS SHALL BE CLAMPED ON WIRE SLEEVE OVER HEAT SHRINK TUBING.
3. MICROPHONE TO CONSOLE WIRING TIES CABLE SHIELDS AT BOTH ENDS.
4. SHIELD IS TIED AT BOTH ENDS FOR ALL INTERCOM SYSTEMS.

RJ45 TO DB9 ADAPTER PINOUT		
RJ45 PIN #	**COLOR CODE**	**DB9 PIN #**
3	BLACK	1
1	BLUE	2
2	ORANGE	3
4	RED	4
5	GREEN	5
6	YELLOW	6
7	BROWN	7
8	WHITE	8

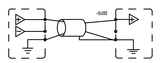
NOTE:
- ADAPTERS CONNECT TO CAT 5/6 CABLES WIRED STRAIGHT-THROUGH PER TIA/EIA 568B
- FOR CROSSOVER - CONNECT ORANGE WIRE TO DB9 PIN 2 AND BLUE WIRE TO PIN3
- CLEARLY LABEL ALL CROSSOVER ADAPTERS

RJ45 PINOUT		
PIN #	**TIA/EIA 568B**	**TIA/EIA 568A**
1	ORANGE / WHITE	GREEN / WHITE
2	ORANGE	GREEN
3	GREEN / WHITE	ORANGE / WHITE
4	BLUE	BLUE
5	BLUE/WHITE	BLUE / WHITE
6	GREEN	ORANGE
7	BROWN / WHITE	BROWN / WHITE
8	BROWN	BROWN

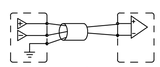
NOTE: TIA/EIA 568B SHALL BE USED UNLESS NOTED OTHERWISE



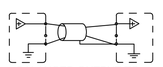
TRANSFORMER BALANCED OUTPUT TO UNBALANCED INPUT



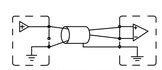
ACTIVE BALANCED OUTPUT TO UNBALANCED INPUT



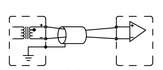
ACTIVE BALANCED OUTPUT TO ACTIVE BALANCED INPUT



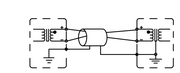
BALANCED OUTPUT TO UNBALANCED INPUT



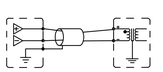
UNBALANCED OUTPUT TO BALANCED INPUT



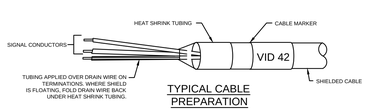
TRANSFORMER BALANCED OUTPUT TO ACTIVE BALANCED INPUT



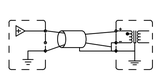
TRANSFORMER BALANCED OUTPUT TO TRANSFORMER BALANCED INPUT



ACTIVE BALANCED OUTPUT TO TRANSFORMER BALANCED INPUT


HEAT SHRINK TUBING
CABLE MARKER
SIGNAL CONDUCTORS
VID 42
TUBING APPLIED OVER DRAIN WIRE ON TERMINATIONS. WHERE SHIELD IS FLOATING, FOLD DRAIN WIRE BACK UNDER HEAT SHRINK TUBING.
SHIELDED CABLE

TYPICAL CABLE PREPARATION



UNBALANCED OUTPUT TO TRANSFORMER BALANCED INPUT

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SCALE: NTS	DRAWING SET SIZE: 30" x 42"
DOCUMENT SET: BID DOCUMENTS	

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
AUDIO TERMINATIONS WIRING DETAILS

SHEET NUMBER: AV003
REV:

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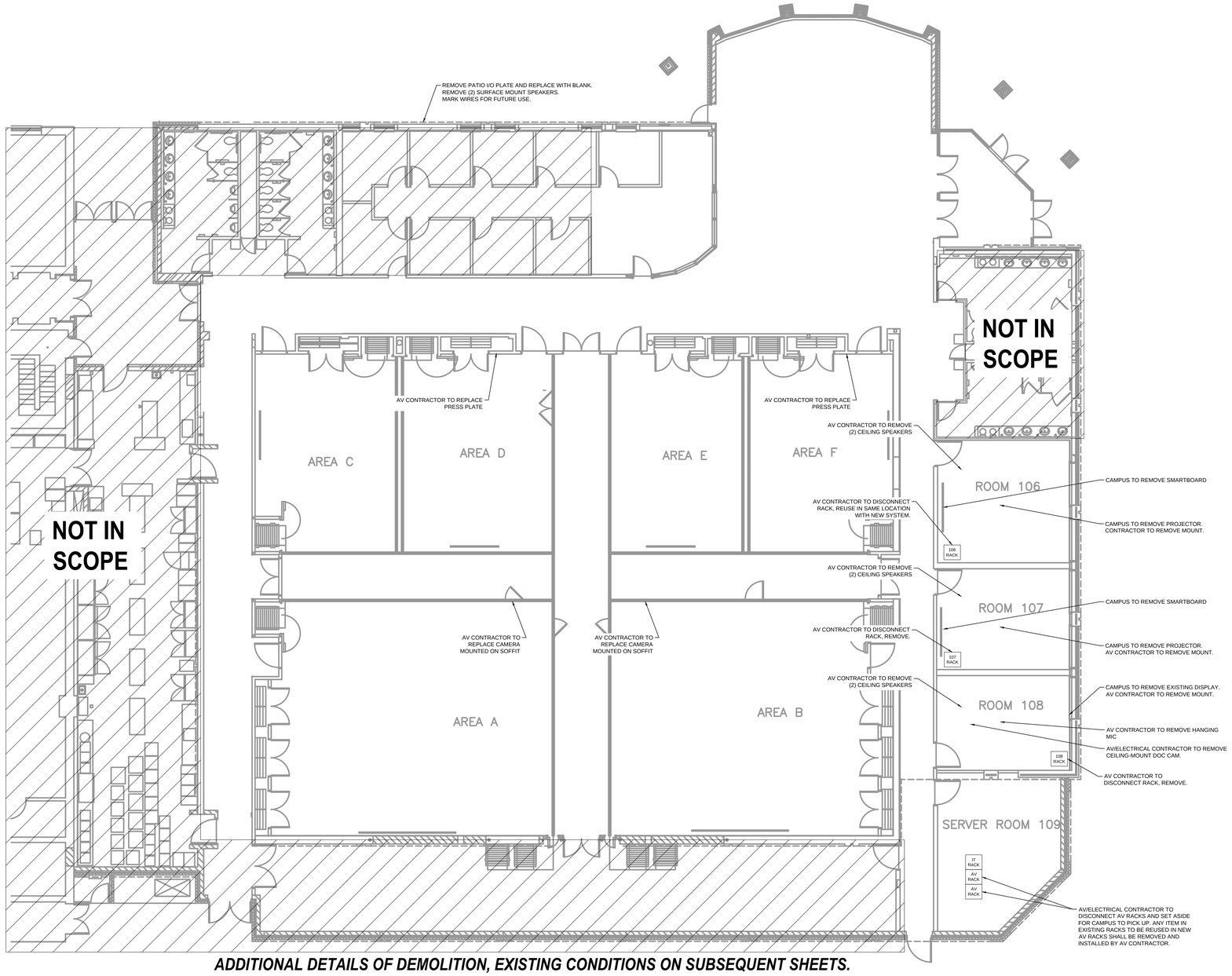
REMOVE PATIO I/O PLATE AND REPLACE WITH BLANK.
REMOVE (2) SURFACE MOUNT SPEAKERS.
MARK WIRES FOR FUTURE USE.
NOT IN SCOPE
NOT IN SCOPE
AREA C
AREA D
AREA E
AREA F
AREA A
AREA B
ROOM 106
ROOM 107
ROOM 108
SERVER ROOM 109
AV CONTRACTOR TO REPLACE PRESS PLATE
AV CONTRACTOR TO REPLACE PRESS PLATE
AV CONTRACTOR TO REMOVE (2) CEILING SPEAKERS
AV CONTRACTOR TO DISCONNECT RACK, REUSE IN SAME LOCATION WITH NEW SYSTEM.
AV CONTRACTOR TO REMOVE (2) CEILING SPEAKERS
AV CONTRACTOR TO DISCONNECT RACK, REMOVE.
AV CONTRACTOR TO REMOVE (2) CEILING SPEAKERS
AV CONTRACTOR TO REPLACE CAMERA MOUNTED ON SOFFIT
AV CONTRACTOR TO REPLACE CAMERA MOUNTED ON SOFFIT
CAMPUS TO REMOVE SMARTBOARD
CAMPUS TO REMOVE PROJECTOR. CONTRACTOR TO REMOVE MOUNT.
CAMPUS TO REMOVE SMARTBOARD
CAMPUS TO REMOVE PROJECTOR. AV CONTRACTOR TO REMOVE MOUNT.
CAMPUS TO REMOVE EXISTING DISPLAY. AV CONTRACTOR TO REMOVE MOUNT.
AV CONTRACTOR TO REMOVE HANGING MIC.
AV/ELECTRICAL CONTRACTOR TO REMOVE CEILING-MOUNT DOC CAM.
AV CONTRACTOR TO DISCONNECT RACK, REMOVE.
AV/ELECTRICAL CONTRACTOR TO DISCONNECT AV RACKS AND SET ASIDE FOR CAMPUS TO PICK UP. ANY ITEM IN EXISTING RACKS TO BE REUSED IN NEW AV RACKS SHALL BE REMOVED AND INSTALLED BY AV CONTRACTOR.
106 RACK
107 RACK
108 RACK
IT RACK
AV RACK
AV RACK

ADDITIONAL DETAILS OF DEMOLITION, EXISTING CONDITIONS ON SUBSEQUENT SHEETS.

TAG LEGEND

ASSOCIATED BOX TYPE — *MOUNTING LOCATION*

WB-XX +XX"-C
VC-X/XX FM

DEVICE CLASS & TYPE — *MOUNTING TYPE*

UNIQUE ID PER DEVICE TYPE

MOUNTING TYPE

- FM FLUSH MOUNT
- SM SURFACE MOUNT
- RM RECESSED MOUNT
- FS FREE-STANDING

MOUNTING LOCATION

- CLG CEILING
- FLR FLOOR
- RHT PROJECT RECEPTACLE HEIGHT
- SHT PROJECT SWITCH HEIGHT
- XX"-T INCHES AFF TO TOP OF BOX
- XX"-C INCHES AFF TO CENTER OF BOX
- XX"-B INCHES AFF TO BOTTOM OF BOX
- MPE MOUNT PER ELEVATION
- NOTE X SEE SHEET KEYNOTE #X FOR MOUNTING DETAILS

REFER TO SHEET AV001 FOR DEVICE CLASSES AND TYPES, WALL BOX TYPES.

DEVICE SYMBOL LEGEND

- Sx CEILING SPEAKER & TYPE #
- Sx CEILING SPEAKER & TYPE #
- Sx WALL-MOUNT SPEAKER & TYPE #
- Sx WALL-MOUNT SPEAKER & TYPE #
- IS INSTRUCTOR'S STATION
- CR CREDENZA
- ER EQUIPMENT RACK

GENERAL SHEET NOTES

1. FLOOR BOXES ARE EXISTING. INTERNAL TELECOM/AV PLATES TO BE REPLACED.
2. PROJECTORS AND PROJECTOR SCREENS ARE EXISTING AND SHALL REMAIN AS PART OF THE PROJECT.

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VARIES	30" x 42"

DOCUMENT SET:
BID DOCUMENTS

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
AV DEMOLITION PLAN - LUNDA CENTER

SHEET NUMBER: AV101
REV:

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FOUNDER'S HALL

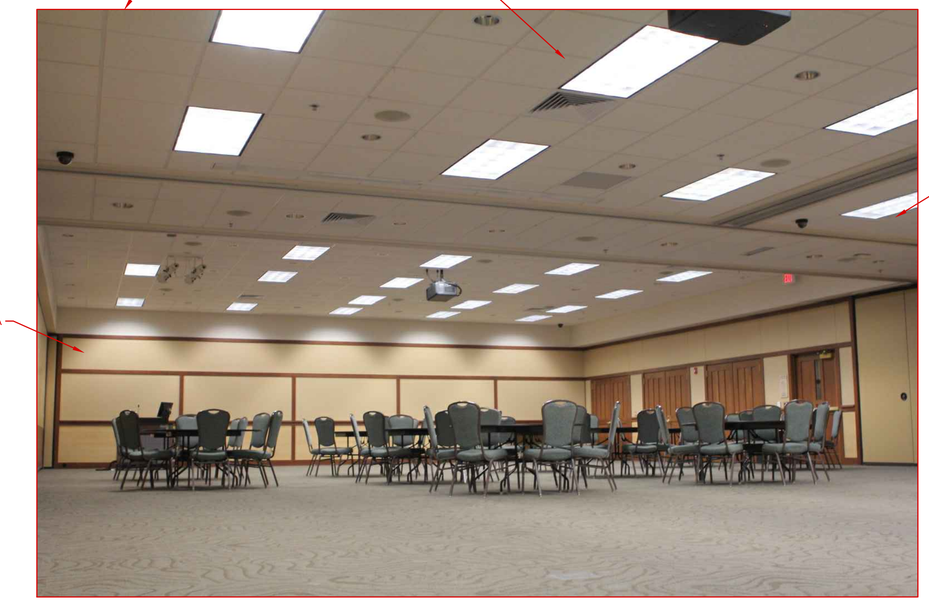
GENERAL DEMOLITION NOTES

1. AV CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WIRE ABANDONED AS PART OF THIS PROJECT.
2. ALL DEMOLITION SPECIFIED TO BE PERFORMED BY AV CONTRACTOR EXCEPT AS NOTED.
3. ALL EQUIPMENT, LOOSE CABLES TO BE REMOVED FROM EXISTING SYSTEMS SHALL BE DISCONNECTED BY AV CONTRACTOR AND HANDED OVER TO OWNER AT LOCATION ON-SITE TO-BE-DETERMINED BY OWNER.
4. AV CONTRACTOR SHALL TEST EQUIPMENT, WIRING TO BE REUSED FOR CONNECTIVITY, GROUNDING ISSUES, DAMAGE, ETC. CONNECTIONS AND WIRES TO BE REPAIRED/REPLACED. CONTRACTOR TO FURNISH QUOTE FOR EQUIPMENT, WIRING REPAIRS/REPLACEMENT.
5. DOCUMENTATION OF EXISTING SYSTEMS FROM PREVIOUS PROJECTS IS PROVIDED AS ADVISORY DOCUMENTATION. IT HAS NOT BEEN THOROUGHLY VERIFIED AND MAY NOT BE WHOLLY REPRESENTATIVE OF EXISTING CONDITIONS.

ALL CEILINGS ARE PLENUM SPACES. COMMUNICATIONS CABLES ABOVE CEILING FREE-AIRED ON J-HOOKS.

AREA D

AREA A



6 FOUNDER'S HALL - FACING AREA A
NTS

REMOVE VGA EXTENDER FOR SURPLUS, PROVIDE COVER OR CLOSE HOLE

AREA A

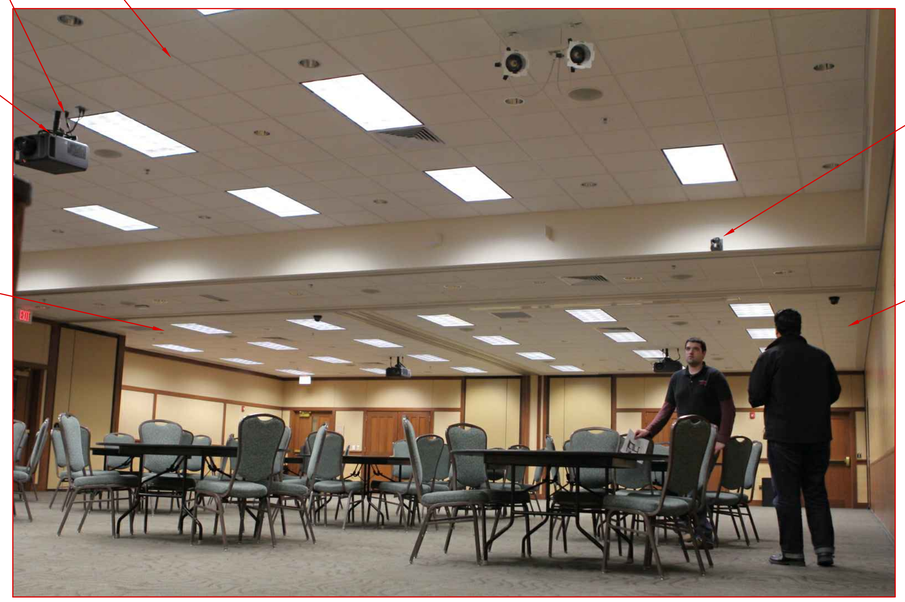
MOUNT DM RECEIVER ATOP PROJECTOR

AREA C

DEMO PER DETAIL THIS SHEET

AREA C

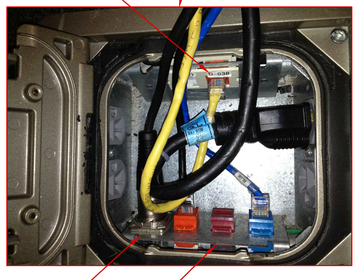
AREA D



5 FOUNDER'S HALL - FACING AREAS C/D
NTS

THESE FLOOR BOXES PART OF WALKERDUCT CABLE RACEWAY SYSTEM

ABANDON EXISTING CAT5E WIRING



ABANDON AUDIO CONNECTION

ABANDON EXISTING CAT5E WIRING

NOTES:
1) PROVIDE BLANK PLATES ON ALL UNUSED GANGS.
2) DEMO ALL ABANDONED WIRE.
3) PROVIDE PLATES, CONNECTORS, NEW WIRE AS INDICATED BY SCHEMATICS, PANEL DRAWINGS.

4 SMALL FLOOR BOXES - TYP OF (4) AAC LOCATIONS
NTS

THESE FLOOR BOXES FED FROM CONDUITS EXTENDED OFF OF NEARBY WALKERDUCT CABLE RACEWAY SYSTEM BUT NOT PART OF WALKERDUCT SYSTEM

ABANDON EXISTING CAT5E WIRING

ABANDON EXISTING CAT5E WIRING

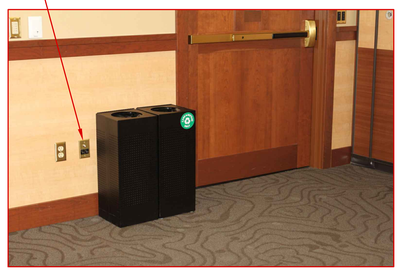
ABANDON AUDIO CONNECTIONS

ABANDON VIDEO CONNECTION

NOTES:
1) PROVIDE BLANK PLATES ON ALL UNUSED GANGS.
2) DEMO ALL ABANDONED WIRE.
3) PROVIDE PLATES, CONNECTORS, NEW WIRE AS INDICATED BY SCHEMATICS, PANEL DRAWINGS.

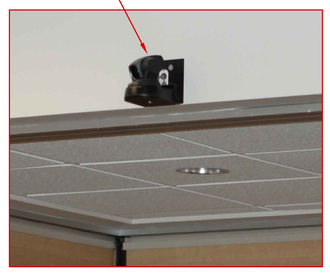
3 LARGE FLOOR BOXES - TYP OF (2) AAB LOCATIONS
NTS

REMOVE EXISTING PRESS PLATE
DEMO WIRES TO BE ABANDONED
RETERMINATE EXISTING AUDIO CABLE ON NEW PLATE



2 PRESS PLATES - TYP OF 2 LOCATIONS
NTS

REMOVE EXISTING CAMERA / MOUNT
INSTALL NEW CAMERA / MOUNT



1 CAMERAS - TYP OF 2 LOCATIONS
NTS

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DEMOLITION DETAILS - FOUNDER'S HALL

SHEET NUMBER:	REV:
AV102	0

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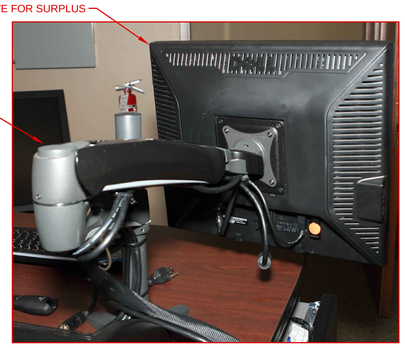
LECTERNS

REMOVE FOR SURPLUS

REUSE EXISTING MONITOR MOUNT WITH NEW LCD DISPLAYS

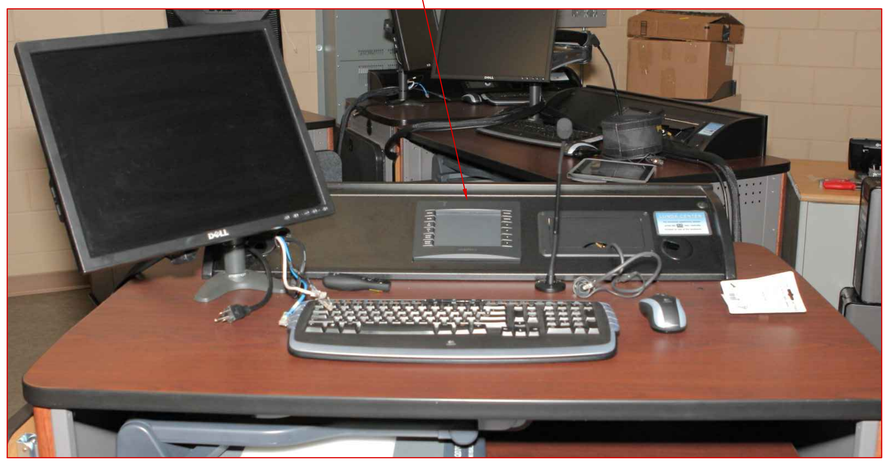


7 LECTERN MONITOR MOUNT - TYP OF 6 LECTERNS
NTS

ROUTE DOC CAM CABLING THROUGH SIDE EXIT GROMMET

6 LECTERN SIDE - TYP OF 6 LECTERNS
NTS

RETROFIT NEW, LARGER TOUCHSCREEN IN PLACE OF EXISTING ONE



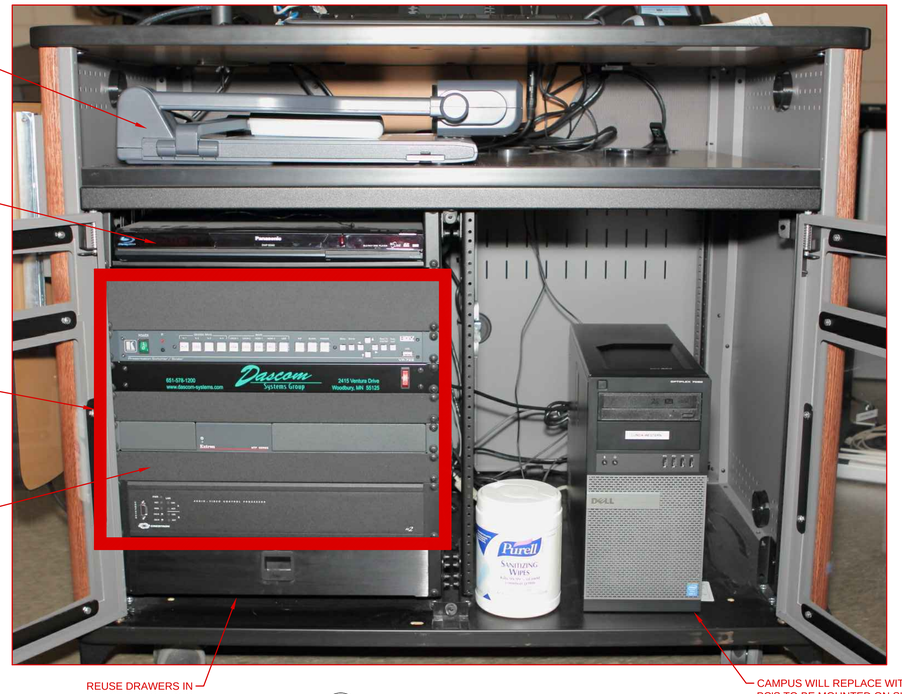
4 LECTERN TOP - TYP OF 6 LECTERNS
NTS

LEAVE DOC CAMS IN PLACE

REUSE SHELVES AND BLU-RAY PLAYERS IN NEW LECTERNS

REMOVE FOR SURPLUS

AV CONTRACTOR MAY REUSE BLANK PANELS WITHOUT COSMETIC DAMAGE WHERE ALL BLANK PANELS IN A GIVEN RACK HAVE SAME FINISH



REUSE DRAWERS IN NEW LECTERNS

CAMPUS WILL REPLACE WITH NEW PC'S TO BE MOUNTED ON SHELVES WITHIN LECTERNS

2 FRONT OF LECTERN - TYP OF 6 LECTERNS
NTS

REUSE MICROPHONE

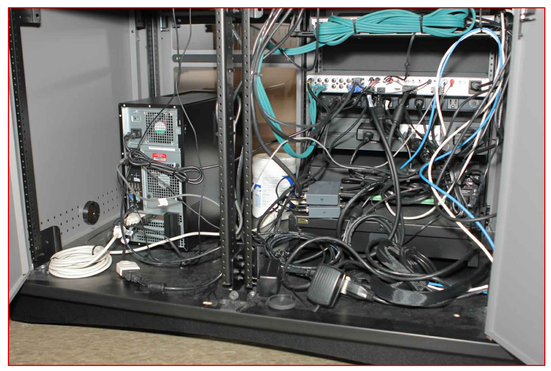
5 LECTERN TOP - TYP OF 6 LECTERNS
NTS

1) AV CONTRACTOR MAY REUSE EXISTING CABLES WHERE IF CABLES PASS CONNECTIVITY TESTS.

2)REMOVE OLD WIRE LABELS AND REPLACE WITH NEW LABELS.

3) REMOVE WIRES NOT USED IN NEW SYSTEM.

3 CABLE PASS-THROUGH - TYP OF 6 LECTERNS
NTS



1 BACK OF LECTERN - TYP OF 6 LECTERNS
NTS

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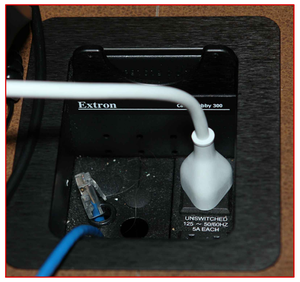
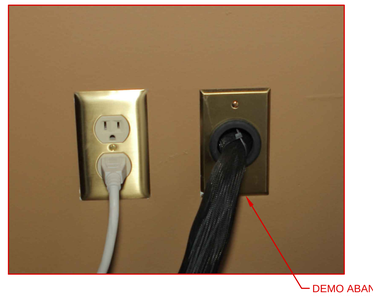
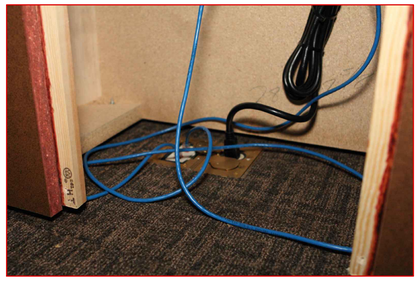
ROOM 107



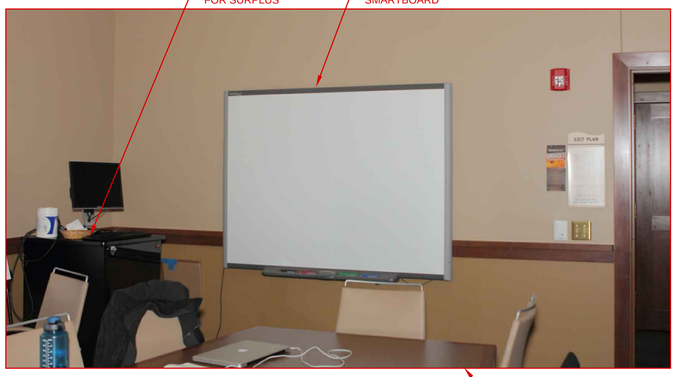
12 ROOM 107 - CABLE CUBBY CENTER OF TABLE
NTS



11 ROOM 107 - WIRING METHOD TO RACK
NTS



10 ROOM 107 - WIRING BELOW TABLE
NTS

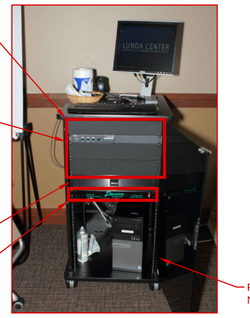


9 ROOM 107 - WEST WALL
NTS

8 ROOM 107 - EAST WALL
NTS

7 ROOM 107 - CEILING
NTS

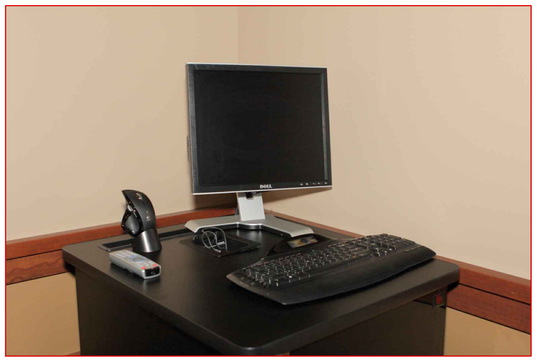
ROOM 106



6 ROOM 106 - RACK
NTS

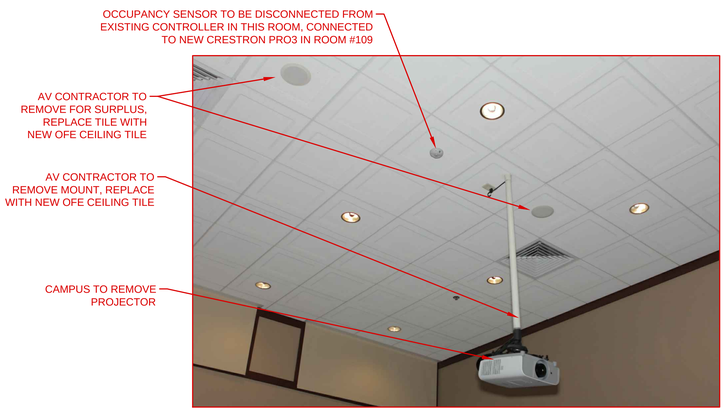
5 ROOM 106 - RACK TOP CABLE CUBBY
NTS

4 ROOM 106 - WIRING METHOD TO RACK
NTS



3 ROOM 106 - RACK TOP
NTS

2 ROOM 106 - WEST WALL
NTS



1 ROOM 106 - CEILING
NTS

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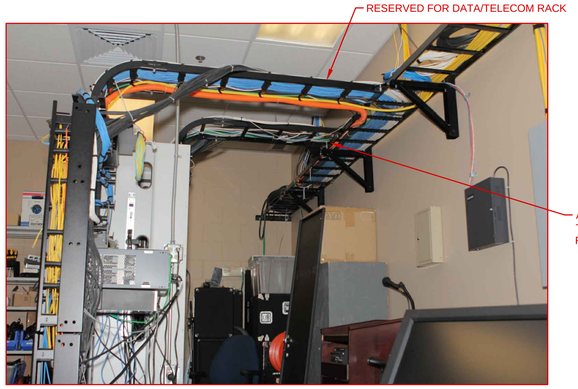
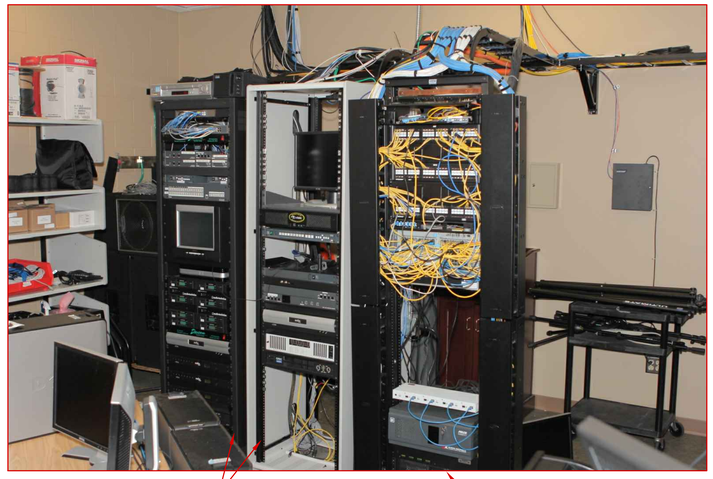
ROOM 109

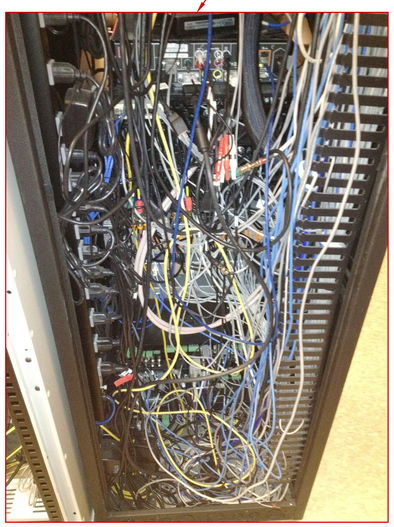


5 ROOM 109 - CABLE TRAY
NTS



4 ROOM 109 - AV / IT RACKS
NTS

3 ROOM 109 - CRESTRON LIGHTING SYSTEM
NTS


AV CONTRACTOR TO IDENTIFY AND LABEL WIRING TO BE REUSED, DEMO WIRE TO BE ABANDONED. LOOSE CABLES TO BE TURNED OVER TO CAMPUS. ABANDONED WIRE TO BE SCRAPPED BY AV CONTRACTOR.

2 ROOM 109 - BACK OF MAIN AUDIO RACK
NTS

AV CONTRACTOR TO REMOVE, TEST EACH WIRELESS TRANSMITTER, RECEIVER, ANTENNA DISTRIBUTION UNIT, INSTALL INTO NEW SYSTEM.
AV CONTRACTOR TO REMOVE, TEST EACH AMPLIFIER CHANNEL, REINSTALL INTO NEW SYSTEM.
AV CONTRACTOR TO REMOVE, TEST EACH AMPLIFIER CHANNEL, REINSTALL INTO NEW SYSTEM.

1 ROOM 109 - MAIN AV RACKS
NTS

GENERAL NOTES:

1) NOT IN AV CONTRACTOR'S SCOPE TO REPAIR EXISTING, NON-FUNCTIONAL EQUIPMENT.

2) AV CONTRACTOR TO NOTIFY CAMPUS, CONSULTANT OF NON-FUNCTIONAL EQUIPMENT AND PROVIDE QUOTE FOR REPAIR.

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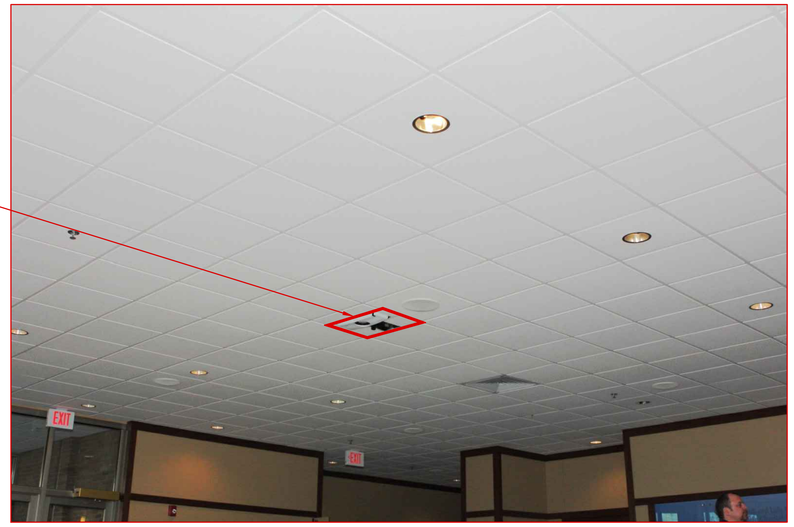
ATRIUM

10 ATRIUM DIGITAL SIGNAGE
NTS

INTERACTIVE PROJECTOR NOT-IN-SCOPE

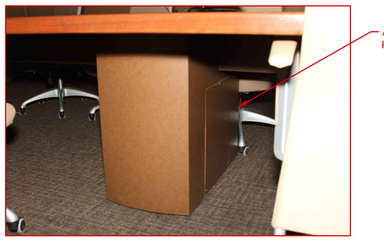
EXISTING DISPLAY TO REMAIN. MOUNT DM RECEIVER BEHIND.



8 ATRIUM CEILING
NTS

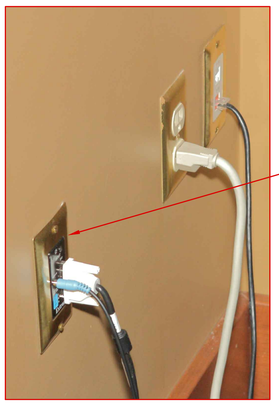
7 CORRIDOR OUTSIDE 106, 107, 108, 109
NTS

ROOM 108



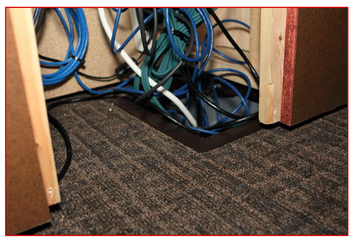
ACCESS PANEL FOR FLOOR BOX

5 ROOM 108 - UNDER TABLE
NTS



REMOVE FOR SURPLUS, DEMO ABANDONED CABLE, PROVIDE BLANK COVER WITH FINISH TO MATCH EXISTING PLATES

4 ROOM 108 - WIRING TO RACK
NTS

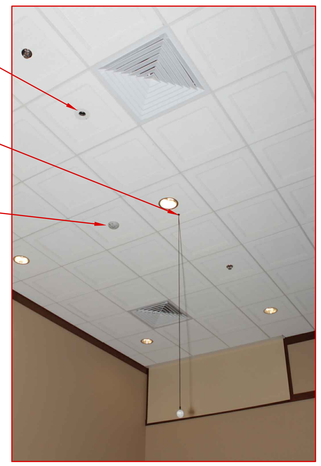


3 ROOM 108 - WIRING BELOW TABLE
NTS

AV CONTRACTOR TO REMOVE DOC CAM FOR SURPLUS, REPLACE TILE WITH NEW OFE CEILING TILE

AV CONTRACTOR TO REMOVE HANGING MIC FOR SURPLUS, REPLACE TILE WITH NEW OFE CEILING TILE

OCCUPANY SENSOR TO BE DISCONNECTED FROM EXISTING CONTROLLER IN THIS ROOM, CONNECTED TO NEW CRESTRON PRO3 IN ROOM #109



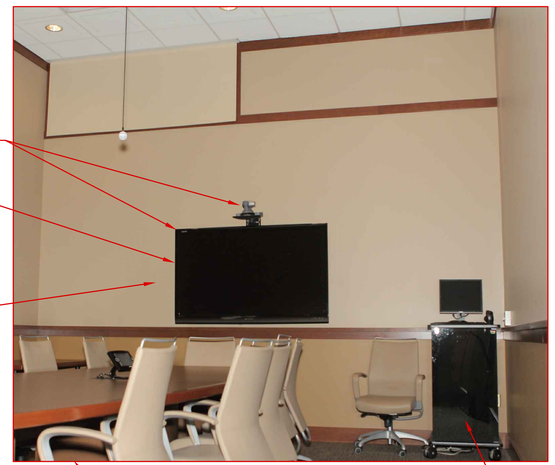
2 ROOM 108 - CEILING
NTS

REMOVE ANALOG VIDEO, AUDIO AAP INSERT AND REPLACE WITH USBX2 AAP INSERT.

DEMO CABLES TO BE ABANDONED

AV CONTRACTOR TO REMOVE FOR SURPLUS

6 ROOM 108 - TABLE TOP
NTS



CAMPUS TO REMOVE DISPLAY, CAMERA

AV CONTRACTOR TO REMOVE TV MOUNT FOR SURPLUS

NEW TV TO MOUNT ON THIS WALL

FIXED TABLE, CENTER OF ROOM

GIVE RACK TO CAMPUS FOR SURPLUS

1 ROOM 108 - EAST WALL
NTS

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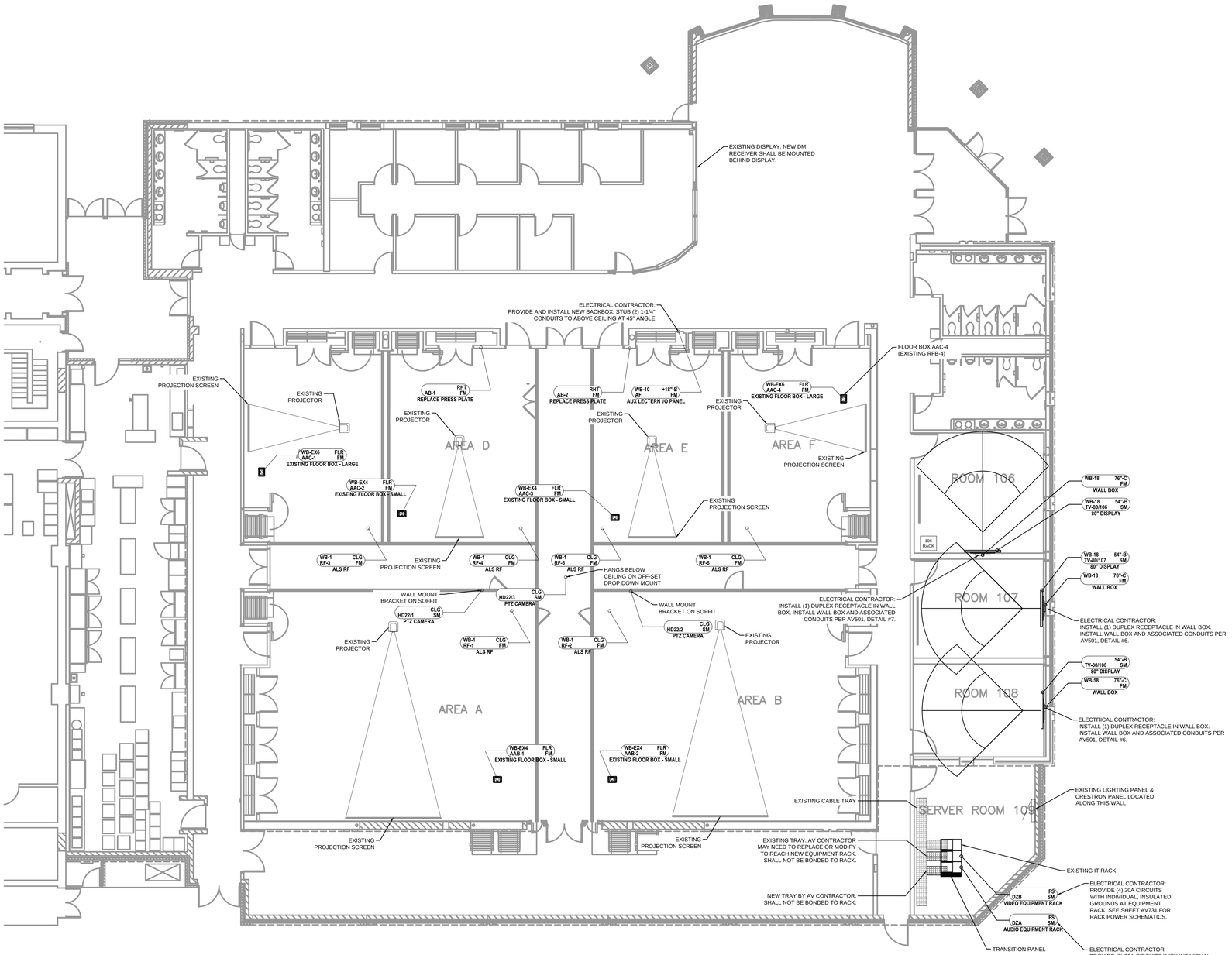
EXISTING DISPLAY. NEW DM RECEIVER SHALL BE MOUNTED BEHIND DISPLAY.
ELECTRICAL CONTRACTOR: PROVIDE AND INSTALL NEW BACKBOX, STUB (2) 1-1/4" CONDUITS TO ABOVE CEILING AT 45° ANGLE
FLOOR BOX AAC-4 (EXISTING RFB-4)
EXISTING PROJECTION SCREEN
EXISTING PROJECTOR
AB-1 RHT FM REPLACE PRESS PLATE
AB-2 RHT FM REPLACE PRESS PLATE
WB-10 +18"-B AF FM AUX LECTERN I/O PANEL
WB-EX6 FLR AAC-4 FM EXISTING FLOOR BOX - LARGE
WB-EX6 FLR AAC-1 FM EXISTING FLOOR BOX - LARGE
WB-EX4 FLR AAC-2 FM EXISTING FLOOR BOX - SMALL
WB-EX4 FLR AAC-3 FM EXISTING FLOOR BOX - SMALL
WB-EX4 FLR AAB-1 FM EXISTING FLOOR BOX - SMALL
WB-EX4 FLR AAB-2 FM EXISTING FLOOR BOX - SMALL
AREA A
AREA B
AREA D
AREA E
AREA F
WB-1 RF-1 CLG FM ALS RF
WB-1 RF-2 CLG FM ALS RF
WB-1 RF-3 CLG FM ALS RF
WB-1 RF-4 CLG FM ALS RF
WB-1 RF-5 CLG FM ALS RF
WB-1 RF-6 CLG FM ALS RF
HANGS BELOW CEILING ON OFF-SET DROP DOWN MOUNT
WALL MOUNT BRACKET ON SOFFIT
HD22/3 CLG SM PTZ CAMERA
HD22/1 CLG SM PTZ CAMERA
HD22/2 CLG SM PTZ CAMERA
ROOM 106
ROOM 107
ROOM 108
SERVER ROOM 109
106 RACK
WB-18 76"-C FM WALL BOX
WB-18 54"-B TV-80/106 SM 80" DISPLAY
WB-18 54"-B TV-80/107 SM 80" DISPLAY
WB-18 76"-C FM WALL BOX
ELECTRICAL CONTRACTOR: INSTALL (1) DUPLEX RECEPTACLE IN WALL BOX. INSTALL WALL BOX AND ASSOCIATED CONDUITS PER AV501, DETAIL #7.
ELECTRICAL CONTRACTOR: INSTALL (1) DUPLEX RECEPTACLE IN WALL BOX. INSTALL WALL BOX AND ASSOCIATED CONDUITS PER AV501, DETAIL #6.
54"-B TV-80/108 SM 80" DISPLAY
WB-18 76"-C FM WALL BOX
ELECTRICAL CONTRACTOR: INSTALL (1) DUPLEX RECEPTACLE IN WALL BOX. INSTALL WALL BOX AND ASSOCIATED CONDUITS PER AV501, DETAIL #8.
EXISTING LIGHTING PANEL & CRESTRON PANEL LOCATED ALONG THIS WALL
EXISTING CABLE TRAY
EXISTING TRAY. AV CONTRACTOR MAY NEED TO REPLACE OR MODIFY TO REACH NEW EQUIPMENT RACK. SHALL NOT BE BONDED TO RACK.
NEW TRAY BY AV CONTRACTOR. SHALL NOT BE BONDED TO RACK.
EXISTING IT RACK
DZB FS SM VIDEO EQUIPMENT RACK
DZA FS SM AUDIO EQUIPMENT RACK
ELECTRICAL CONTRACTOR: PROVIDE (4) 20A CIRCUITS WITH INDIVIDUAL, INSULATED GROUNDS AT EQUIPMENT RACK. SEE SHEET AV731 FOR RACK POWER SCHEMATICS.
TRANSITION PANEL
ELECTRICAL CONTRACTOR: PROVIDE (8) 20A CIRCUITS WITH INDIVIDUAL, INSULATED GROUNDS AT EQUIPMENT RACK. SEE SHEET AV731 FOR RACK POWER SCHEMATICS.
BOND RACK TO BUILDING GROUND WITH MINIMUM #2 AWG INSULATED GROUND. AUDIO AND VIDEO
AUDIO, VIDEO RACKS TO BE BONDED TOGETHER.

TAG LEGEND

ASSOCIATED BOX TYPE — *MOUNTING LOCATION*

WB-XX +XX"-C
VC-X/XX FM

DEVICE CLASS & TYPE — *MOUNTING TYPE*

UNIQUE ID PER DEVICE TYPE

MOUNTING TYPE

FM FLUSH MOUNT
SM SURFACE MOUNT
RM RECESSED MOUNT
FS FREE-STANDING

MOUNTING LOCATION

CLG CEILING
FLR FLOOR
RHT PROJECT RECEPTACLE HEIGHT
SHT PROJECT SWITCH HEIGHT
XX"-T INCHES AFF TO TOP OF BOX
XX"-C INCHES AFF TO CENTER OF BOX
XX"-B INCHES AFF TO BOTTOM OF BOX
MPE MOUNT PER ELEVATION
NOTE X SEE SHEET KEYNOTE #X FOR MOUNTING DETAILS

REFER TO SHEET AV001 FOR DEVICE CLASSES AND TYPES, WALL BOX TYPES.

DEVICE SYMBOL LEGEND

- Sx — CEILING SPEAKER & TYPE #
- Sx — CEILING SPEAKER & TYPE #
- Sx — WALL-MOUNT SPEAKER & TYPE #
- Sx — WALL-MOUNT SPEAKER & TYPE #
- IS — INSTRUCTOR'S STATION
- CR — CREDENZA
- ER — EQUIPMENT RACK

GENERAL SHEET NOTES

1. FLOOR BOXES ARE EXISTING. INTERNAL TELECOM/AV PLATES TO BE REPLACED.
2. PROJECTORS AND PROJECTOR SCREENS ARE EXISTING AND SHALL REMAIN AS PART OF THE PROJECT.
3. AV CONTRACTOR RESPONSIBLE FOR EMPLOYING AND/OR CONTRACTING LICENSED ELECTRICAL CONTRACTOR TO PERFORM NECESSARY DEMOLITION AND INSTALLATION WORK RELATED TO ELECTRICAL POWER.

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SHEET NUMBER: AV201 — REV:

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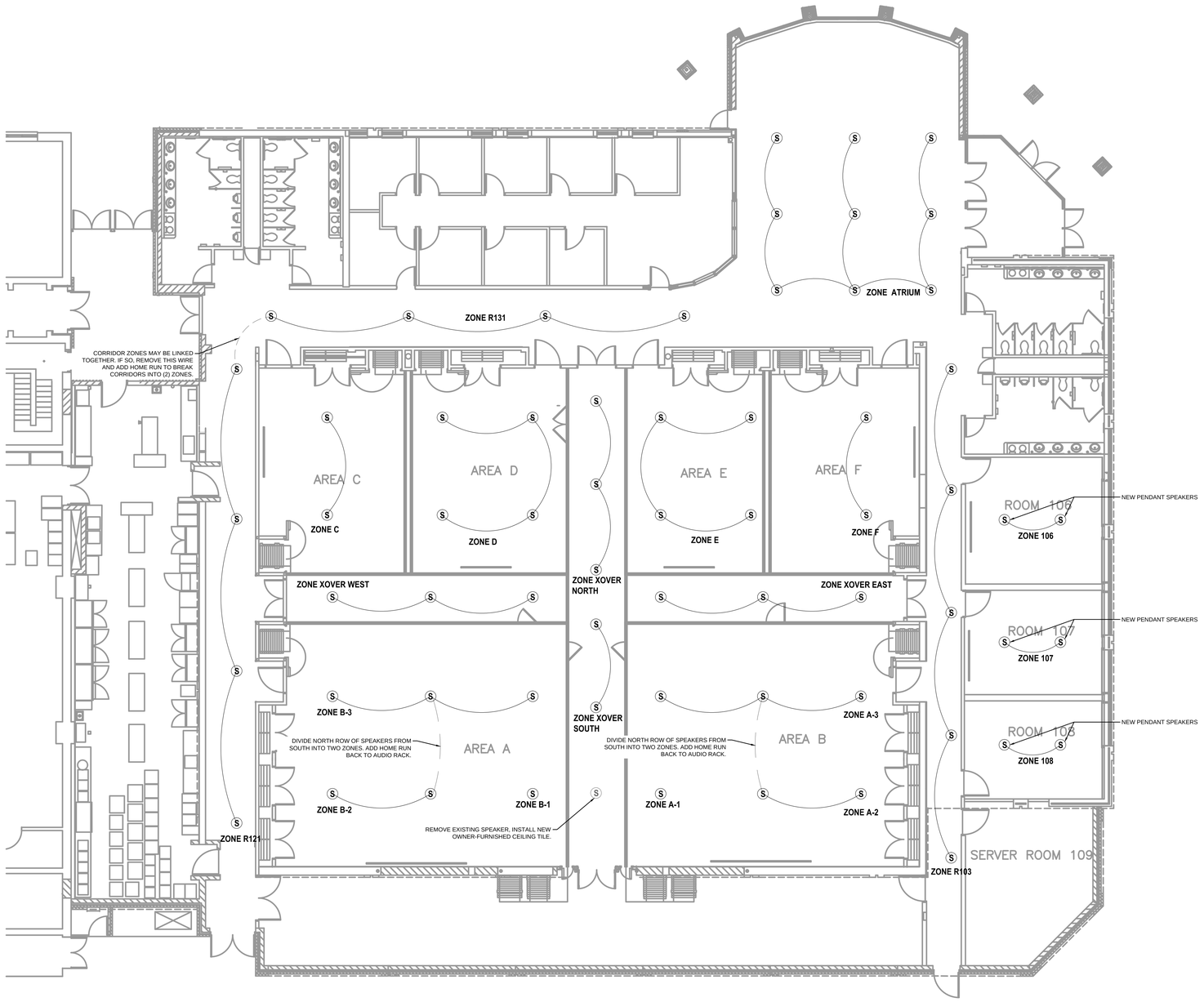

TAG LEGEND

ASSOCIATED BOX TYPE — *MOUNTING LOCATION*

WB-XX +XX"-C
VC-X/XX FM

DEVICE CLASS & TYPE — *MOUNTING TYPE*

UNIQUE ID PER DEVICE TYPE

MOUNTING TYPE

- FM FLUSH MOUNT
- SM SURFACE MOUNT
- RM RECESSED MOUNT
- FS FREE-STANDING

MOUNTING LOCATION

- CLG CEILING
- FLR FLOOR
- RHT PROJECT RECEPTACLE HEIGHT
- SHT PROJECT SWITCH HEIGHT
- XX"-T INCHES AFF TO TOP OF BOX
- XX"-C INCHES AFF TO CENTER OF BOX
- XX"-B INCHES AFF TO BOTTOM OF BOX
- MPE MOUNT PER ELEVATION
- NOTE X SEE SHEET KEYNOTE #X FOR MOUNTING DETAILS

REFER TO SHEET AV001 FOR DEVICE CLASSES AND TYPES, WALL BOX TYPES.

DEVICE SYMBOL LEGEND

- Sx CEILING SPEAKER & TYPE #
- Sx CEILING SPEAKER & TYPE #
- Sx WALL-MOUNT SPEAKER & TYPE #
- Sx WALL-MOUNT SPEAKER & TYPE #
- IS INSTRUCTOR'S STATION
- CR CREDENZA
- ER EQUIPMENT RACK

GENERAL SHEET NOTES

1. SPEAKERS IN FOUNDER'S HALL, ATRIUM, AND HALLWAYS ARE EXISTING AND SHALL REMAIN, BUT SPEAKER WIRE SHALL BE TESTED BY THE AV CONTRACTOR TO DETERMINE IF REPLACEMENT OF WIRE IS NEEDED. CONTRACTOR TO PROVIDE QUOTE FOR REPLACEMENT OF WIRING IF REPLACEMENT IS DEEMED NECESSARY.
2. LOCATIONS, QUANTITIES, ZONING OF EXISTING SPEAKERS ARE APPROXIMATED. CONTRACTOR TO CONFIRM.
3. CONTRACTOR TO MODIFY OF ZONING OF SPEAKERS AS NECESSARY TO ZONE SPEAKERS AS SHOWN. KNOWN MODIFICATIONS HAVE BEEN INDICATED ON THIS SHEET.

Professional AUDIO DESIGNS inc
11707B W. DEARBOURN AVE.
WAUWATOSA, WI 53226
(414) 476-1011

NOT FOR CONSTRUCTION

NOTE: THIS DRAWING SUPERSEDES ALL PREVIOUS DRAWINGS

WESTERN TECHNICAL COLLEGE - LUNDA CENTER
319 SEVENTH STREET NORTH
LA CROSSE, WI 54601

DESIGNED BY: NC / MN	ISSUE DATE: 2015-03-20
SCALE: VARIES	DRAWING SET SIZE: 30" x 42"

DOCUMENT SET: BID DOCUMENTS

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE: SPEAKER LAYOUT - LUNDA CENTER

SHEET NUMBER: AV202 REV:

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GENERAL SHEET NOTES

SHEET KEYNOTES

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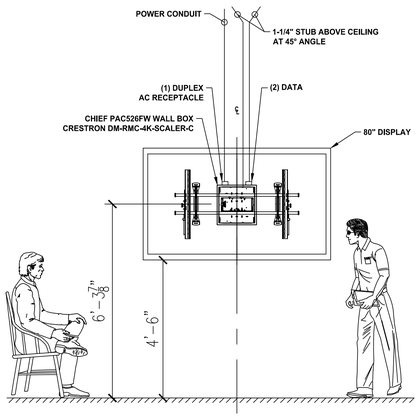
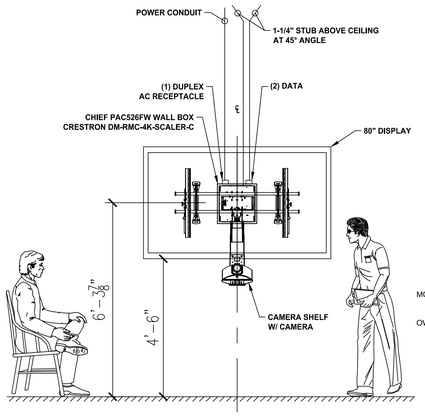


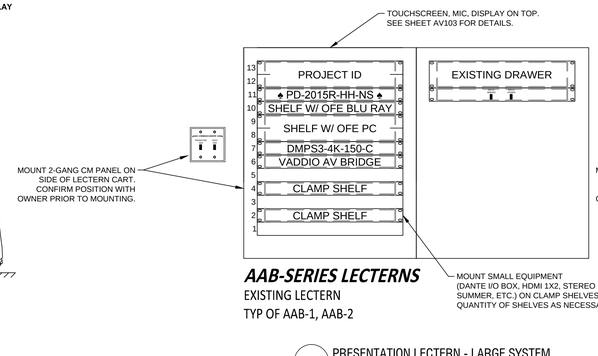
80" LED DISPLAY

7 80" DISPLAYS
NTS



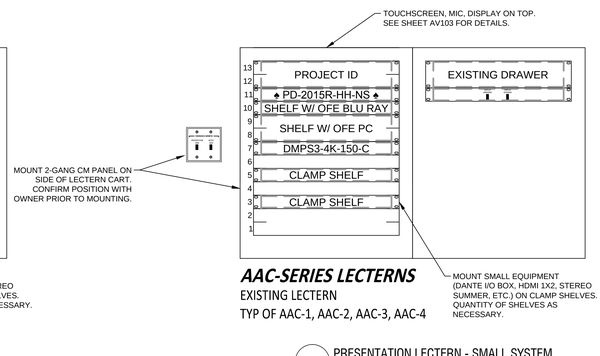
80" LED DISPLAY

6 80" DISPLAYS WITH CAMERAS
NTS


TOUCHSCREEN, MIC, DISPLAY ON TOP. SEE SHEET AV103 FOR DETAILS.
MOUNT 2-GANG CM PANEL ON SIDE OF LECTERN CART. CONFIRM POSITION WITH OWNER PRIOR TO MOUNTING.
PROJECT ID
♠ PD-2015R-HH-NS ♠
SHELF W/ OFE BLU RAY
SHELF W/ OFE PC
DMPS3-4K-150-C
VADDIO AV BRIDGE
CLAMP SHELF
CLAMP SHELF
EXISTING DRAWER
MOUNT SMALL EQUIPMENT (DANTE I/O BOX, HDMI 1X2, STEREO SUMMER, ETC.) ON CLAMP SHELVES. QUANTITY OF SHELVES AS NECESSARY.

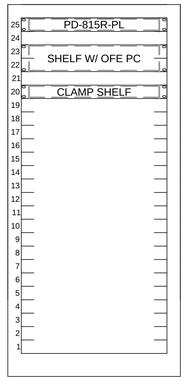
AAB-SERIES LECTERNS
EXISTING LECTERN
TYP OF AAB-1, AAB-2

5 PRESENTATION LECTERN - LARGE SYSTEM
NTS


TOUCHSCREEN, MIC, DISPLAY ON TOP. SEE SHEET AV103 FOR DETAILS.
MOUNT 2-GANG CM PANEL ON SIDE OF LECTERN CART. CONFIRM POSITION WITH OWNER PRIOR TO MOUNTING.
PROJECT ID
♠ PD-2015R-HH-NS ♠
SHELF W/ OFE BLU RAY
SHELF W/ OFE PC
DMPS3-4K-150-C
CLAMP SHELF
CLAMP SHELF
EXISTING DRAWER
MOUNT SMALL EQUIPMENT (DANTE I/O BOX, HDMI 1X2, STEREO SUMMER, ETC.) ON CLAMP SHELVES. QUANTITY OF SHELVES AS NECESSARY.

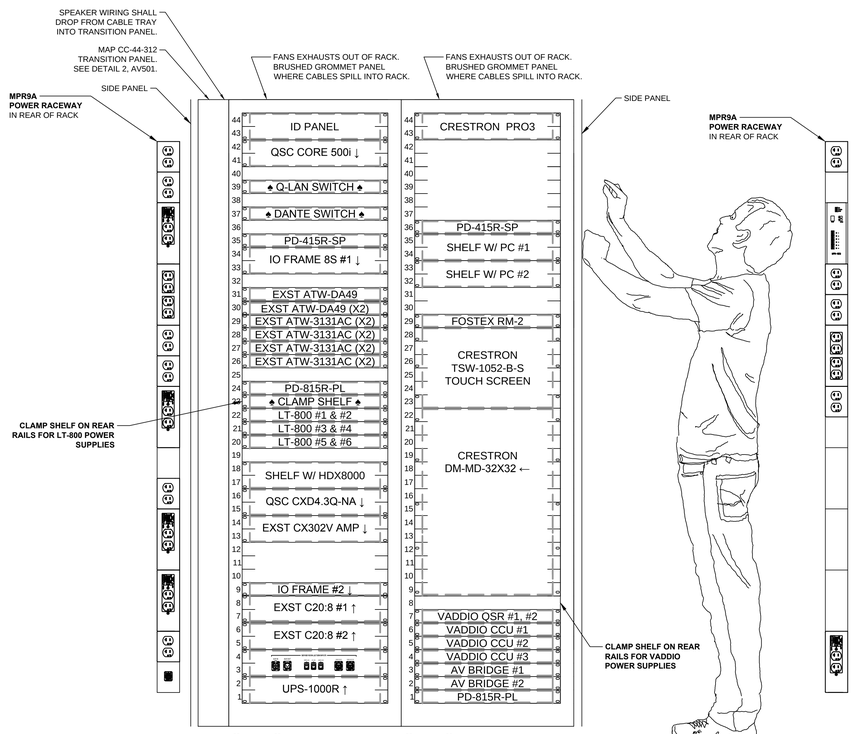
AAC-SERIES LECTERNS
EXISTING LECTERN
TYP OF AAC-1, AAC-2, AAC-3, AAC-4

4 PRESENTATION LECTERN - SMALL SYSTEM
NTS



ER106 RACK
EXISTING RACK

3 ROOM 106 EQUIPMENT RACK
NTS


SPEAKER WIRING SHALL DROP FROM CABLE TRAY INTO TRANSITION PANEL.
MAP CC-44-312 TRANSITION PANEL. SEE DETAIL 2, AV501.
SIDE PANEL
MPR9A POWER RACEWAY IN REAR OF RACK
FANS EXHAUSTS OUT OF RACK. BRUSHED GROMMET PANEL WHERE CABLES SPILL INTO RACK.
FANS EXHAUSTS OUT OF RACK. BRUSHED GROMMET PANEL WHERE CABLES SPILL INTO RACK.
SIDE PANEL
MPR9A POWER RACEWAY IN REAR OF RACK
ID PANEL
QSC CORE 500i ↓
♠ Q-LAN SWITCH ♠
♠ DANTE SWITCH ♠
PD-415R-SP
IO FRAME 8S #1 ↓
EXST ATW-DA49
EXST ATW-DA49 (X2)
EXST ATW-3131AC (X2)
EXST ATW-3131AC (X2)
EXST ATW-3131AC (X2)
EXST ATW-3131AC (X2)
PD-815R-PL
♠ CLAMP SHELF ♠
LT-800 #1 & #2
LT-800 #3 & #4
LT-800 #5 & #6
SHELF W/ HDX8000
QSC CXD4.3Q-NA ↓
EXST CX302V AMP ↓
IO FRAME #2 ↓
EXST C20:8 #1 ↑
EXST C20:8 #2 ↑
UPS-1000R ↑
CRESTRON PRO3
PD-415R-SP
SHELF W/ PC #1
SHELF W/ PC #2
FOSTEX RM-2
CRESTRON TSW-1052-B-S TOUCH SCREEN
CRESTRON DM-MD-32X32 ←
VADDIO QSR #1, #2
VADDIO CCU #1
VADDIO CCU #2
VADDIO CCU #3
AV BRIDGE #1
AV BRIDGE #2
PD-815R-PL
CLAMP SHELF ON REAR RAILS FOR LT-800 POWER SUPPLIES
CLAMP SHELF ON REAR RAILS FOR VADDIO POWER SUPPLIES

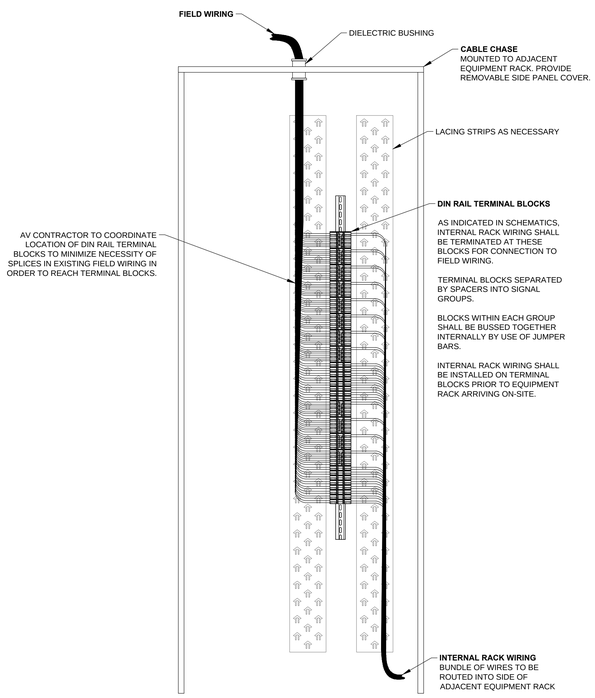
"DZA" RACK
SERVER ROOM 109
(1) MAP WRK-44-32
(1) MAP MW-4QFT-FC
(1) VBK-W27-W32
(1) MAP LF-ISO FEET
(1) SPN-44-312

"DZB" RACK
SERVER ROOM 109
(1) MAP WRK-44-32
(1) MAP MW-4QFT-FC
(1) VBK-W27-W32
(1) MAP LF-ISO FEET

♠ DENOTES COMPONENT TO BE MOUNTED ON REAR RAILS OF RACK

↓ DENOTES REAR-TO-FRONT COOLING
↑ DENOTES FRONT-TO-REAR COOLING
→ DENOTES LEFT-TO-RIGHT COOLING
← DENOTES RIGHT-TO-LEFT COOLING

2 ROOM 109 EQUIPMENT RACKS
NTS


FIELD WIRING
DIELECTRIC BUSHING
CABLE CHASE MOUNTED TO ADJACENT EQUIPMENT RACK. PROVIDE REMOVABLE SIDE PANEL COVER.
LACING STRIPS AS NECESSARY
AV CONTRACTOR TO COORDINATE LOCATION OF DIN RAIL TERMINAL BLOCKS TO MINIMIZE NECESSITY OF SPLICES IN EXISTING FIELD WIRING IN ORDER TO REACH TERMINAL BLOCKS.
DIN RAIL TERMINAL BLOCKS
AS INDICATED IN SCHEMATICS, INTERNAL RACK WIRING SHALL BE TERMINATED AT THESE BLOCKS FOR CONNECTION TO FIELD WIRING.
TERMINAL BLOCKS SEPARATED BY SPACERS INTO SIGNAL GROUPS.
BLOCKS WITHIN EACH GROUP SHALL BE BUSSED TOGETHER INTERNALLY BY USE OF JUMPER BARS.
INTERNAL RACK WIRING SHALL BE INSTALLED ON TERMINAL BLOCKS PRIOR TO EQUIPMENT RACK ARRIVING ON-SITE.
INTERNAL RACK WIRING
BUNDLE OF WIRES TO BE ROUTED INTO SIDE OF ADJACENT EQUIPMENT RACK

1 TRANSITION PANEL DIAGRAM
NTS

WESTERN TECHNICAL COLLEGE - LUNDA CENTER
319 SEVENTH STREET NORTH
LA CROSSE, WI 54601

DESIGNED BY: NC / MN	ISSUE DATE: 2015-03-20
SCALE: VARIES	DRAWING SET SIZE: 30" x 42"
DOCUMENT SET: BID DOCUMENTS	

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
EQUIPMENT ELEVATIONS

SHEET NUMBER: AV501
REV: 0

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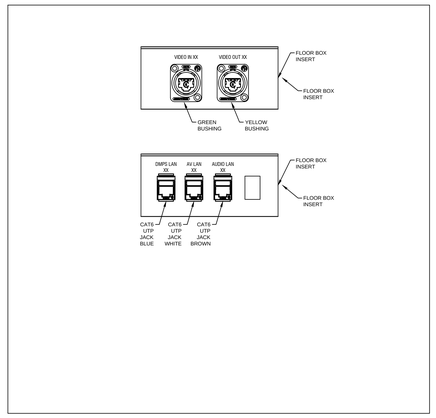
3/30/2015 10:44:15 AM Z:\PAD Projects - Open\Spec Consulting\Western Technical College - Lunda Center\CAD Files\Western Tech - AV\XX Racks & AV\XX Panel Layouts.dwg

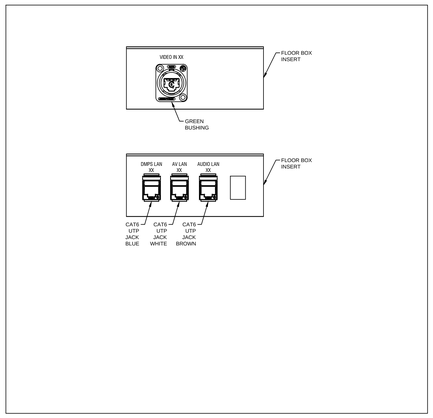
GENERAL SHEET NOTES

SHEET KEYNOTES



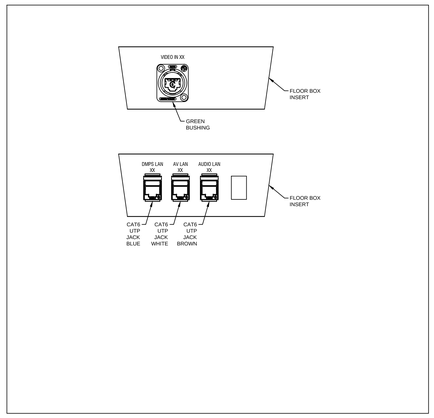
AAB/EX4 - SMALL FB

EXISTING FLOOR BOXES
TYP OF (2) LOCATIONS
AAB-1, AAB-2
WIREMOLD WPACR FLOORPORT SERIES FLOOR BOX, 4-COMPARTMENT
(3) CAT6 UTP
(2) NE8FDY-C6-B



AAC/EX4 - SMALL FB

EXISTING FLOOR BOXES
TYP OF (2) LOCATIONS
AAC-2, AAC-3
WIREMOLD WPACR FLOORPORT SERIES FLOOR BOX, 4-COMPARTMENT
(3) CAT6 UTP
(1) NE8FDY-C6-B

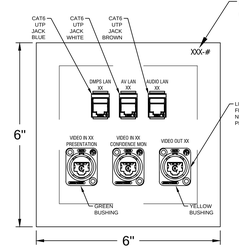


AAC/EX6 - LARGE FB

EXISTING FLOOR BOXES
TYP OF (2) LOCATIONS
AAC-1, AAC-4
HUBBELL FLOORPORT SERIES FLOOR BOX, 6-COMPARTMENT
(3) CAT6 UTP
(1) NE8FDY-C6-B

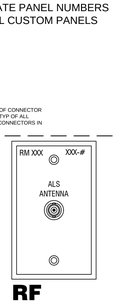
AB

1-GANG
TYP OF (2) LOCATIONS
AB-1, AB-2
(1) NC3FD-L-B



AF

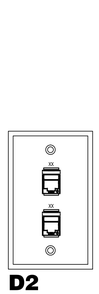
6"H x 6"W BLACK ANODIZED PANEL
SURFACE MOUNT
MAINTAIN CLEARANCE FOR:
6"H x 6"W x 6"D BACKBOX
(3) CAT6 UTP JACKS
(3) NEUTRIK NE8FDY-C6-B



RF

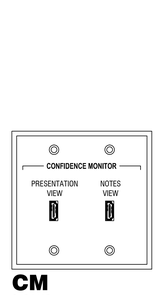
1-GANG
TYP OF (6) LOCATIONS
RF-1, RF-2, RF-3, RF-4, RF-5, RF-6
(1) 50Ω BNC

BID ALTERNATE #2
ASSISTIVE LISTENING SYSTEM



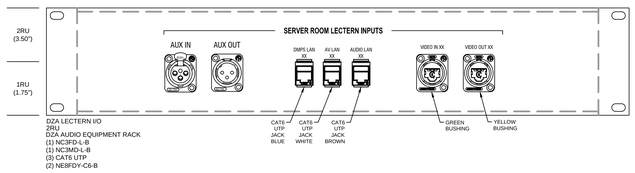
D2

1-GANG
TYP OF (3) LOCATIONS
TV106, TV107, TV108
(2) CAT6 UTP



CM

2-GANG
TYP OF (6) LOCATIONS
AAB-1, AAB-2, AAC-1, AAC-2, AAC-3, AAC-4
(2) HDMI PASS-THRU



DZA LECTERN I/O
2RU
DZA AUDIO EQUIPMENT RACK
(1) NC3FD-L-B
(1) NC3MD-L-B
(3) CAT6 UTP
(2) NE8FDY-C6-B

ID PANEL
2RU
ER-1 EQUIPMENT RACK

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WAUWATOSA, WI 53226
(414) 476-1011

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REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
PANEL LAYOUT

SHEET NUMBER:	REV:
AV601	0

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GENERAL SHEET NOTES

SHEET KEYNOTES

CEILING MIC
TRI-ELEMENT MIC
AUDIX M3W HANGING MIC
ROOM 106 (SUSPENDED FROM CEILING)

CEILING MIC
TRI-ELEMENT MIC
AUDIX M3W HANGING MIC
ROOM 107 (SUSPENDED FROM CEILING)

CEILING MIC
TRI-ELEMENT MIC
AUDIX M3W HANGING MIC
ROOM 108 (SUSPENDED FROM CEILING)

EXISTING PANELS, WIRING TO RACK

ATRIUM PANEL: MIC 1, LINE 1, LINE 2, LINE 3

CAMPUS AUX FEED

PART OF DZA LECTERN I/O PANEL: AUX IN

HDX8000 LEFT VC1 AV 701

HDX8000 RIGHT VC2 AV 701

AUDIO DSP

BRK OUT	MIC 106M1, 106M2, 106M3	CIML4	SLOT A
BRK OUT	MIC 107M1, 107M2, 107M3	CIML4	SLOT B
BRK OUT	MIC 108M1, 108M2, 108M3	CIML4	SLOT C
	MIC, LINE, LINE, LINE	CIML4	SLOT D
	MIC, LINE, LINE, LINE	CIML4	SLOT E
			SLOT F
		COL4	SLOT G
		COL4	SLOT H

SLOT F: LINE 1 VTC CODEC; LINE 2 PRESS OUTPUT AREA D; LINE 3 PRESS OUTPUT AREA E; LINE 4 RACK LECTERN INPUT

SLOT G: LINE 1 RACK MON L; LINE 2 RACK MON R; LINE 3 ATRIUM 1; LINE 4 ATRIUM 2

SLOT H: DANTE PRIM, DANTE SEC

VTC CODEC — AV 712 O16 HDX8000 - LAPTOP

PRESS OUTPUT AREA D — PRESS AB-1

PRESS OUTPUT AREA E — PRESS AB-2

RACK LECTERN INPUT — AUX OUT PART OF DZA LECTERN I/O PANEL

ATRIUM 1 — L1 AMPLIFIER #4 - CH 1

ATRIUM 2 — L2 AMPLIFIER #4 - CH 2

1U STEREO MONITOR
ANALOG IN LEFT
ANALOG IN RIGHT
DIGITAL IN (AES/EBU)
AC
FOSTEX RM-2 P208
FOSTEX RM-2

DANTE SWITCH
AAB-1 ANET 1 — 1 [10/100/1000]
AAB-2 ANET 2 — 2 [10/100/1000]
AAC-1 ANET 3 — 3 [10/100/1000]
AAC-2 ANET 4 — 4 [10/100/1000]
AAC-3 ANET 5 — 5 [10/100/1000]
AAC-4 ANET 6 — 6 [10/100/1000]
AF ANET 7 — 7 [10/100/1000]
DZA LECTERN I/O PANEL ANET 8 — 8 [10/100/1000]
9 RJ-45 [10/100/1000]
9 miniGBIC [10/100/1000]
10 RJ-45 [10/100/1000]
10 miniGBIC [10/100/1000]
AC
DANTE SWITCH P102
CISCO SG300-10

FIRE ALARM SYSTEM BY OTHERS — CTRL

BREAKOUT
GPIO 1
GPIO 2
GPIO 3
GPIO 4
GPIO 5
GPIO 6
GPIO 7
GPIO 8

PRO3 C6 AV 701

CTRL NET T1 AV 721

QSC Q-SYS CORE 500I
GPIO 1, GPIO 2, RS-232, Q-SYS A, Q-SYS B/AUX NETWORK
VIDEO (HD15), VIDEO (DVI-D), USB, USB, USB, USB
AC — P101 CORE 500i

Q-LAN SWITCH
[10/100/1000] 1 — CAT6 — Q2 AUDIO IO FRAME #1
[10/100/1000] 2 — CAT6 — Q3 AUDIO IO FRAME #2
[10/100/1000] 3 — CAT6 — Q4 AMPLIFIER #3
[10/100/1000] 4
[10/100/1000] 5
[10/100/1000] 6
[10/100/1000] 7
[10/100/1000] 8
[10/100/1000] RJ45 9
[1000] SFP 9
[10/100/1000] RJ45 10
[1000] SFP 10
AC — P121 Q-LAN SWITCH
HP 2530-8G (J9777A)

OWNER-FURNISHED EQUIPMENT PART OF EXISTING INSTALLATION. AV CONTRACTOR TO REMOVE FROM EXISTING SYSTEM AND TEST EQUIPMENT FOR DEFECTS, REINSTALL FUNCTIONAL EQUIPMENT INTO NEW SYSTEM, AND NOTIFY CONSULTANT OF NON-FUNCTIONAL EQUIPMENT.

REMOTE ANTENNAS EXISTING. CONTRACTOR TO RECONNECT TO THESE UPON REINSTALLATION.

AUDIO I/O FRAME #1

EXISTING WIRELESS MIC RECEIVER (x8) — MIC

FUTURE BGM CHANNEL 1
FUTURE BGM CHANNEL 2
FUTURE BGM CHANNEL 3

	MIC	CIML4	SLOT A
	MIC	CIML4	SLOT B
MONO SUM - RM 106	LINE	CIML4	SLOT C
MONO SUM - RM 107	LINE	CIML4	SLOT D
MONO SUM - RM 108	LINE	CIML4	SLOT E
MONO SUM - AREA A	LINE		SLOT F
MONO SUM - AREA B	LINE	COL4	SLOT G
MONO SUM - AF PANEL	LINE	COL4	SLOT H

SLOT E: AV BRIDGE #1 BD1 AV 711; AV BRIDGE #2 BD2 AV 711

SLOT G: LINE 1 ALS - AREA A; LINE 2 ALS - AREA B; LINE 3 ALS - AREA C; LINE 4 ALS - AREA D

SLOT H: LINE 1 ALS - AREA E; LINE 2 ALS - AREA F; LINE 3 AV 711 BD3 AV BRIDGE #1; LINE 4 AV 711 BD4 AV BRIDGE #2

GPIO 1, GPIO 2, RS-232, Q-SYS A, Q-SYS B/AUX NETWORK
VIDEO (HD15), VIDEO (DVI-D), USB, USB, USB, USB
QLAN SWITCH Q2
AC — P109 IO FRAME 8S
QSC I/O FRAME 8S

BID ALTERNATE #2 - ASSISTIVE LISTENING SYSTEM

ALS TRANSMITTER - AREA A
IN 1 MIC/LINE, IN 2 L, IN 2 R, MIX L, MIX R, AC, ANT 50Ω
LT-800 #1 P113
LISTEN LT-800

ALS TRANSMITTER - AREA B
LT-800 #2 P114
LISTEN LT-800

ALS TRANSMITTER - AREA C
LT-800 #3 P115
LISTEN LT-800

ALS TRANSMITTER - AREA D
LT-800 #4 P116
LISTEN LT-800

ALS TRANSMITTER - AREA E
LT-800 #5 P117
LISTEN LT-800

ALS TRANSMITTER - AREA F
LT-800 #6 P118
LISTEN LT-800

ANT — ALS ANT — RF-1, RF-2, RF-3, RF-4, RF-5, RF-6
CEILING

PASSIVE DIVIDER/COMBINER (x8)
DM MTX OUT D1L AV 714 — A, C
DM MTX OUT D1R AV 714 — B, D
RDL STD-10K

COMBINE ANTENNA VIA CRESTRON SRD-ANT-8-PAK

ANTENNA TO MOUNT ON ROOF ORIENTED TOWARD SOUTH

XM TUNER (x3)
AUDIO OUT L, AUDIO OUT R, SPDIF, AUDIO OUT RJ45
XM ANT, CRESNET
CRESTRON C2N-TXM

STEREO SUMMER (x3)
LEFT (RCA), RIGHT (RCA), MONO
RDL TX-J2

CRESNET BLOCK
NET 1, NET 2, NET 3, NET 4, NET 5, NET 6, NET 7, NET 8
CRESTRON CNTBLOCK

TO DSP (x3)

BID ALTERNATE #5 - XM RADIO

AUDIO I/O FRAME #2

		COL4	SLOT A
		COL4	SLOT B
		COL4	SLOT C
		COL4	SLOT D

SLOT A: LINE 1 ZONE A; LINE 2 ZONE A-1; LINE 3 ZONE A/B-1; LINE 4 ZONE B

SLOT B: LINE 1 ZONE B-1; LINE 2 ZONE C; LINE 3 ZONE D; LINE 4 ZONE E

SLOT C: LINE 1 ZONE F; LINE 2 ZONE XOVER NORTH; LINE 3 ZONE XOVER EAST; LINE 4 ZONE XOVER SOUTH

SLOT D: LINE 1 ZONE XOVER WEST; LINE 2 ZONE R121; LINE 3 ZONE R103; LINE 4 ZONE R131

GPIO 1, RS-232
QLAN SWITCH Q3
Q-SYS A, Q-SYS B
AC — P118 IO FRAME
QSC Q-SYS I/O FRAME

OWNER-FURNISHED EQUIPMENT PART OF EXISTING INSTALLATION. AV CONTRACTOR TO REMOVE FROM EXISTING SYSTEM AND TEST EQUIPMENT FOR DEFECTS, REINSTALL FUNCTIONAL EQUIPMENT INTO NEW SYSTEM, AND NOTIFY CONSULTANT OF NON-FUNCTIONAL EQUIPMENT.

AMPLIFIER #1
1–8 — AV 702 A1.1 – A1.8
CTRL 1 ON, CTRL 2 FAULT, NET IN NET OUT, AC
C20:8X #1 P119
LAB GRUPPEN C20:8X

AMPLIFIER #2
1–8 — AV 702 A2.1 – A2.8
C20:8X #2 P120
LAB GRUPPEN C20:8X

AMPLIFIER #4
1 (XLR) CH 1 — AV 702 A4.1
1 (PHOENIX) BRIDGE MONO
2 (XLR) CH 2 — AV 702 A4.2
2 (PHOENIX)
DATA PORT
AC
CORE 500 OUTPUT L1
CORE 500 OUTPUT L2
EXISTING QSC AMP P112
QSC CX302V

AMPLIFIER #3
1 (PHOENIX) CH A — AV 702 A3.1
2 (PHOENIX) CH B — AV 702 A3.2
3 (PHOENIX) CH C — AV 702 A3.3
4 (PHOENIX) CH D — AV 702 A3.4
GPIO
Q-SYS A, Q-SYS B
AC
QSYS SWITCH Q4
CXD4.3Q-NA P110
QSC CXD4.3Q

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SHEET NUMBER: AV701 — REV: 0

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GENERAL SHEET NOTES **SHEET KEYNOTES**

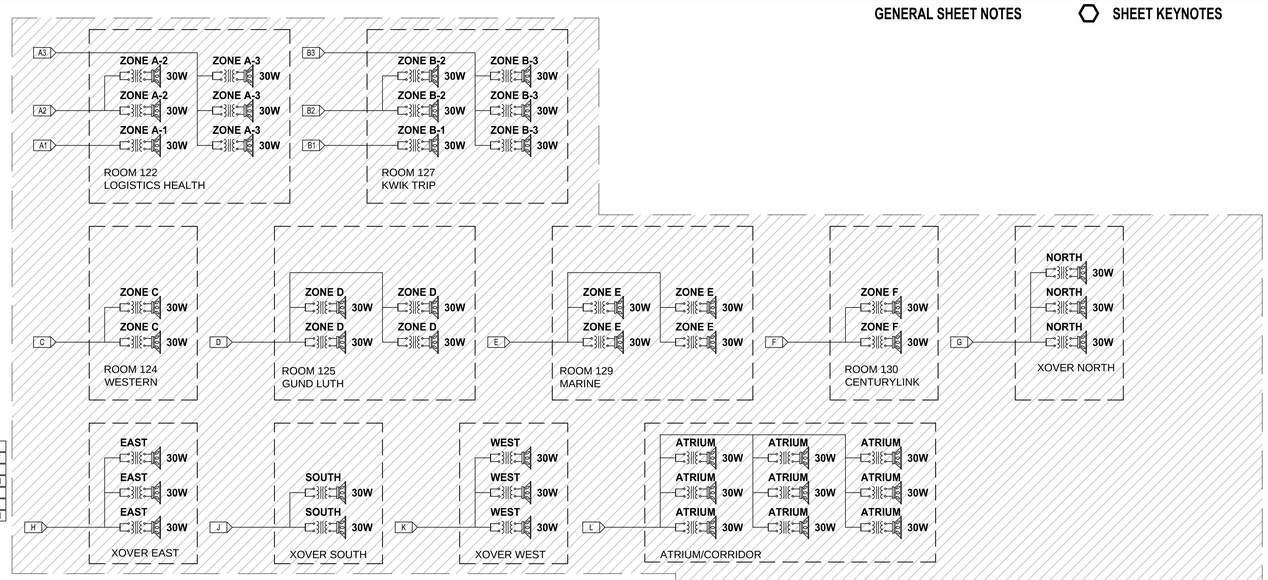
LABEL INTERNAL RACK WIRES TO MATCH AMPLIFIER, CHANNEL NUMBERS

LABEL TERMINAL BLOCKS TO MATCH AMPLIFIER, CHANNEL NUMBERS

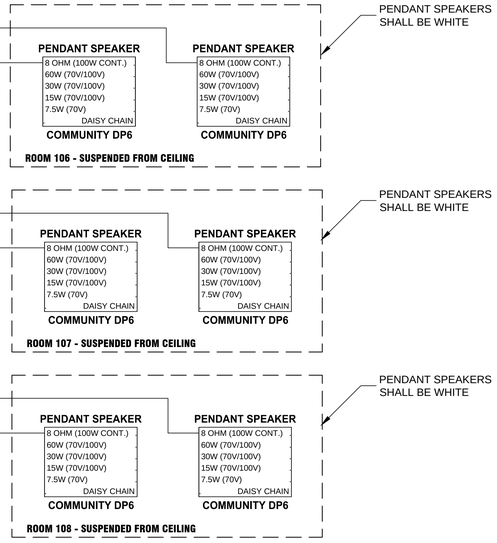
LABEL FIELD WIRES TO MATCH LOUDSPEAKER ZONE NUMBERS

A1.1 AV 701	SPK 12	WHITE / BLACK	A1-A	WHITE / BLACK	SPK 12	***ZONE A-1 [30W]***	A1
A1.2 AV 701	SPK 12	WHITE / BLACK	A1-A	WHITE / BLACK	SPK 12	***ZONE A-2 [60W]***	A2
A1.3 AV 701	SPK 12	WHITE / BLACK	A1-A	WHITE / BLACK	SPK 12	***ZONE A-3 [90W]***	A3
A1.4 AV 701	SPK 12	WHITE / BLACK	A1-B	WHITE / BLACK	SPK 12	***ZONE B-1 [30W]***	B1
A1.5 AV 701	SPK 12	WHITE / BLACK	A1-B	WHITE / BLACK	SPK 12	***ZONE B-2 [60W]***	B2
A1.6 AV 701	SPK 12	WHITE / BLACK	A1-B	WHITE / BLACK	SPK 12	***ZONE B-3 [90W]***	B3
A1.7 AV 701	SPK 12	WHITE / BLACK	A1-C	WHITE / BLACK	SPK 12	***ZONE C [60W]***	C
A1.8 AV 701	SPK 12	WHITE / BLACK	A1-C	WHITE / BLACK	SPK 12	***ZONE D [120W]***	D
		WHITE / BLACK	A1-D	WHITE / BLACK			
		WHITE / BLACK	A1-E	WHITE / BLACK			
		WHITE / BLACK	A1-F	WHITE / BLACK			
		WHITE / BLACK	A1-G	WHITE / BLACK			
		WHITE / BLACK	A1-H	WHITE / BLACK			
A2.1 AV 701	SPK 12	WHITE / BLACK	A2-A	WHITE / BLACK	SPK 12	***ZONE E [120W]***	E
A2.2 AV 701	SPK 12	WHITE / BLACK	A2-A	WHITE / BLACK	SPK 12	***ZONE F [60W]***	F
A2.3 AV 701	SPK 12	WHITE / BLACK	A2-B	WHITE / BLACK	SPK 12	***ZONE XOVER NORTH [90W]***	G
A2.4 AV 701	SPK 12	WHITE / BLACK	A2-B	WHITE / BLACK	SPK 12	***ZONE XOVER EAST [90W]***	H
A2.5 AV 701	SPK 12	WHITE / BLACK	A2-C	WHITE / BLACK	SPK 12	***ZONE XOVER SOUTH [90W]***	J
A2.6 AV 701	SPK 12	WHITE / BLACK	A2-C	WHITE / BLACK	SPK 12	***ZONE XOVER WEST [90W]***	K
A2.7 AV 701	SPK 12	WHITE / BLACK	A2-D	WHITE / BLACK	SPK 12	***ZONE R121 [120W]***	M
A2.8 AV 701	SPK 12	WHITE / BLACK	A2-E	WHITE / BLACK			
		WHITE / BLACK	A2-F	WHITE / BLACK			
		WHITE / BLACK	A2-G	WHITE / BLACK			
		WHITE / BLACK	A2-H	WHITE / BLACK			
A3.1 AV 701	SPK 12	WHITE / BLACK	A3-A1	WHITE / BLACK	SPK 12	***RM 106 - EAST***	
A3.2 AV 701	SPK 12	WHITE / BLACK	A3-A2	WHITE / BLACK	SPK 12	***RM 106 - WEST***	
A3.3 AV 701	SPK 12	WHITE / BLACK	A3-B1	WHITE / BLACK	SPK 12	***RM 107 - EAST***	
A3.4 AV 701	SPK 12	WHITE / BLACK	A3-B2	WHITE / BLACK	SPK 12	***RM 107 - WEST***	
		WHITE / BLACK	A3-C1	WHITE / BLACK	SPK 12	***RM 108 - EAST***	
		WHITE / BLACK	A3-C2	WHITE / BLACK	SPK 12	***RM 108 - WEST***	
		WHITE / BLACK	A3-D	WHITE / BLACK	SPK 12	***ATRIUM (270W)***	L
A4.1 AV 701	SPK 12	WHITE / BLACK	A4-A	WHITE / BLACK	SPK 12	***ZONE R103 [150W]***	N
A4.2 AV 701	SPK 12	WHITE / BLACK	A4-B	WHITE / BLACK	SPK 12	***ZONE R131 [120W]***	P

TRANSITION PANEL
DIN RAIL TERMINAL BLOCKS
(REFER TO AV501 - TRANSITION PANEL DETAIL)



EXISTING SPEAKERS. AV CONTRACTOR TO VERIFY QUANTITIES, TEST FOR FUNCTIONALITY, AND PERFORM MINOR REZONING AS-NEEDED. SEE PLAN VIEW FOR MORE INFORMATION.



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GENERAL SHEET NOTES

SHEET KEYNOTES

ROOM 106

LAPTOP LAN → AV 721 D9 AV CONTROL SWITCH

OFE KEYBOARD → USB
OFE MOUSE → USB

OFE PC
USB 3.0 DVI
USB 3.0 DISPLAYPORT
USB 2.0 AUDIO
USB 2.0 USB 3.0
USB 2.0 USB 3.0
USB 2.0 LAN
AC

OFE PC
DELL 7020 SFF

LAPTOP HDMI
LAPTOP VGA W/ AUDIO

AV 721 D8 AV CONTROL SWITCH
AV 721 TS1 AV CONTROL SWITCH

CABLE PASS THROUGH

COMPUTER TRANSMITTER
DP, HDMI, VGA
DISPLAY PORT DM
HDMI LAN
PC COM
VIDEO IR
AUDIO L(RCA)
AUDIO R(RCA)
AUDIO (3.5MM) GND
USB HID 24VDC
8G

CRESTRON
DM-TX-401-C

TSW-750-TTK-B-S → **7" TOUCH SCREEN** (POE LAN)

CRESTRON TSW-752-B-S
TOP OF RACK

EXISTING IN-ROOM EQUIPMENT RACK

ROOM 107

LAPTOP #1 LAN → AV 721 D10 AV CONTROL SWITCH
LAPTOP #2 LAN → AV 721 D11 AV CONTROL SWITCH

COMPUTER TRANSMITTER
LAPTOP DISPLAYPORT
LAPTOP HDMI
LAPTOP VGA W/ AUDIO
DP, HDMI, VGA
DISPLAY PORT DM
HDMI LAN
PC COM
VIDEO IR
AUDIO L(RCA)
AUDIO R(RCA)
AUDIO (3.5MM) GND
USB HID 24VDC
8G

EXTRON 2-PORT USB AAP INSERT
AAP USB INSERT
AAP USB INSERT

AV 721 TS2 AV CONTROL SWITCH
AV 721 N2 AV CONTROL SWITCH

CABLE PASS THROUGH

CRESTRON
DM-TX-401-C

USB REMOTE
CAT6
LINK USB
USB
USB
POWER USB
USB, USB

CRESTRON
USB-EXT-DM-REMOTE

TSW-750-TTK-B-S → **7" TOUCH SCREEN** (POE LAN)

CRESTRON TSW-752-B-S
TABLE TOP

UNDER TABLE

MOUNT POWER STRIP UNDER TABLE TO POWER USB EXTENDER, CABLE CUBBY IF NOT ENOUGH SPARE RECEPTACLES ARE AVAILABLE

ROOM 108

LAPTOP #1 LAN → AV 721 D12 AV CONTROL SWITCH
LAPTOP #2 LAN → AV 721 D13 AV CONTROL SWITCH

COMPUTER TRANSMITTER
LAPTOP DISPLAYPORT
LAPTOP HDMI
LAPTOP VGA W/ AUDIO
DP, HDMI, VGA
DISPLAY PORT DM
HDMI LAN
PC COM
VIDEO IR
AUDIO L(RCA)
AUDIO R(RCA)
AUDIO (3.5MM) GND
USB HID 24VDC
8G

EXTRON 2-PORT USB AAP INSERT
AAP USB INSERT
AAP USB INSERT

AV 721 TS3 TOUCH SCREEN RM 108
AV 721 N3 AV CONTROL SWITCH

CABLE PASS THROUGH

CRESTRON
DM-TX-401-C

USB REMOTE
CAT6
LINK USB
USB
USB
POWER USB
USB, USB

CRESTRON
USB-EXT-DM-REMOTE

TSW-750-TTK-B-S → **7" TOUCH SCREEN** (POE LAN)

CRESTRON TSW-752-B-S
TABLE TOP

UNDER TABLE

MOUNT POWER STRIP UNDER TABLE TO POWER USB EXTENDER, CABLE CUBBY IF NOT ENOUGH SPARE RECEPTACLES ARE AVAILABLE

AV BRIDGE #1
DM 32X32 OUT 13 V013 AV 705
HDMI NETWORK
HD YPBPR/RGBHV USB
SD (BNC) RS-232
CORE 500 BD1 AV 701 → LINE IN (XLR)
CORE 500 BD3 AV 701 → LINE OUT (XLR)
LINE IN (RCA)
LINE OUT (RCA) 18VDC → P213 VADDIO AV BRIDGE #1

AV 721 D14 AV CTRL SWITCH
USB

VADDIO AV BRIDGE
CONFERENCE

AV BRIDGE #2
DM 32X32 OUT 14 V014 AV 705
HDMI NETWORK
HD YPBPR/RGBHV USB
SD (BNC) RS-232
CORE 500 BD2 AV 701 → LINE IN (XLR)
CORE 500 BD4 AV 701 → LINE OUT (XLR)
LINE IN (RCA)
LINE OUT (RCA) 18VDC → P214 VADDIO AV BRIDGE #2

AV 721 D15 AV CTRL SWITCH
USB

VADDIO AV BRIDGE
CONFERENCE

RACK PC #1
USB 3.0 DVI
USB 3.0 DISPLAYPORT
USB 2.0 AUDIO
USB 2.0 USB 3.0
USB 2.0 USB 3.0
USB 2.0 LAN
AC
PC #1 P204

HDMI
AV 721 D6 UTP DATA PB #1

OFE PC
DELL 7020 SFF

USB-LOCAL
USB
USB LINK
AV 721 N5 AV CONTROL SWITCH

CRESTRON
USB-EXT-DM-LOCAL

RACK PC #2
USB 3.0 DVI
USB 3.0 DISPLAYPORT
USB 2.0 AUDIO
USB 2.0 USB 3.0
USB 2.0 USB 3.0
USB 2.0 LAN
AC
PC #2 P205

HDMI
AV 721 D7 UTP DATA PB #1

OFE PC
DELL 7020 SFF

USB-LOCAL
USB
USB LINK
AV 721 N6 AV CONTROL SWITCH

CRESTRON
USB-EXT-DM-LOCAL

DIGITAL MATRIX 32X32 1 THRU 16

AAB-1	VID IN 1	SLOT 1	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
AAB-2	VID IN 2	SLOT 2	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
AAC-1	VID IN 3	SLOT 3	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
AAC-2	VID IN 4	SLOT 4	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
AAC-3	VID IN 5	SLOT 5	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
AAC-4	VID IN 6	SLOT 6	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
PODM N7		SLOT 7	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
PODM N8		SLOT 8	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
PODM N9		SLOT 9	DMC-C	DM IN, POE IN, HDMI, LEFT, RIGHT, OUT, IN
		SLOT 10	DMC-4K-HD	HDMI IN, USB HID, HDMI, LEFT, RIGHT, OUT, IN
		SLOT 11	DMC-4K-HD	HDMI IN, USB HID, HDMI, LEFT, RIGHT, OUT, IN
	HDMI	SLOT 12	DMC-4K-HD	HDMI IN, USB HID, HDMI, LEFT, RIGHT, OUT, IN
	HDMI	SLOT 13	DMC-4K-HD	HDMI IN, USB HID, HDMI, LEFT, RIGHT, OUT, IN
	HDMI	SLOT 14	DMC-4K-HD	HDMI IN, USB HID, HDMI, LEFT, RIGHT, OUT, IN
		SLOT 15	DMC-VID-BNC	PR/C/COMP, PB/Y, Y, LEFT, RIGHT, IN, HDMI OUT
		SLOT 16	DMC-VID-BNC	PR/C/COMP, PB/Y, Y, LEFT, RIGHT, IN, HDMI OUT

CRESTRON DM-MD32X32

HD CAMERA
(RJ45) VIDEO
(RJ45) POWER
(RJ45) RS-232
EZ POWER HD VIDEO
HDMI
YPbPr
12V DC
CAT6

VADDIO POWERVIEW HD-22

HD-22/1 IN-ROOM A

CAMERA CCU #1
VIDEO FROM CAM HDMI
36 VDC TO CAM HD-SDI
RS-232 TO CAM HD YPbPr
RS-232 IN RS232 → AV 721 C1 CONTROL PROCESSOR COM #1
LOCAL TALLY
POWER → P210 VADDIO CCU #1

VADDIO
UNIVERSAL CCU

HDMI

HD CAMERA
EZ-POWER VIDEO
RS-232
CAT6

VADDIO WIDESHOT HD

CHIEF FCA810 MOUNT VIA ROOM'S DISPLAY MOUNT

IN-ROOM 107

INTERFACE #1
EZ CAM HD VIDEO → YPbPr
RS-232 OUT RS-232 IN → AV 721 C4 CONTROL PROCESSOR COM #4
IR OUTPUT
POWER → P208 VADDIO QSR #1

VADDIO
QUICK-CONNECT SR

HD CAMERA
(RJ45) VIDEO
(RJ45) POWER
(RJ45) RS-232
EZ POWER HD VIDEO
HDMI
YPbPr
12V DC
CAT6

VADDIO POWERVIEW HD-22

HD-22/2 IN-ROOM B

CAMERA CCU #2
VIDEO FROM CAM HDMI
36 VDC TO CAM HD-SDI
RS-232 TO CAM HD YPbPr
RS-232 IN RS232 → AV 721 C2 CONTROL PROCESSOR COM #2
LOCAL TALLY
POWER → P211 VADDIO CCU #2

VADDIO
UNIVERSAL CCU

HDMI

HD CAMERA
EZ-POWER VIDEO
RS-232
CAT6

VADDIO WIDESHOT HD

CHIEF FCA810 MOUNT VIA ROOM'S DISPLAY MOUNT

IN-ROOM 108

INTERFACE #2
EZ CAM HD VIDEO → YPbPr
RS-232 OUT RS-232 IN → AV 721 C5 CONTROL PROCESSOR COM #5
IR OUTPUT
POWER → P209 VADDIO QSR #2

VADDIO
QUICK-CONNECT SR

HD CAMERA
(RJ45) VIDEO
(RJ45) POWER
(RJ45) RS-232
EZ POWER HD VIDEO
HDMI
YPbPr
12V DC
CAT6

VADDIO POWERVIEW HD-22

HD-22/3 CEILING BETWEEN A & B

CAMERA CCU #3
VIDEO FROM CAM HDMI
36 VDC TO CAM HD-SDI
RS-232 TO CAM HD YPbPr
RS-232 IN RS232 → AV 721 C3 CONTROL PROCESSOR COM #3
LOCAL TALLY
POWER → P212 VADDIO CCU #3

VADDIO
UNIVERSAL CCU

HDMI

VIDEO ENCODER #1
HDMI IN HDMI OUT
1/8" AUDIO IN 1/8" AUDIO OUT
USB
RELAY IN RS-232 → AV 721 S1 PRO3
RELAY OUT RS-422/485
POE LAN POWER

AV CTRL SWITCH D17 AV 721

MARSHAL
VS-102-HDI

VIDEO ENCODER #2
HDMI IN HDMI OUT
1/8" AUDIO IN 1/8" AUDIO OUT
USB
RELAY IN RS-232 → AV 721 S2 PRO3
RELAY OUT RS-422/485
POE LAN POWER

AV CTRL SWITCH D18 AV 721

MARSHAL
VS-102-HDI

VIDEO ENCODER #3
HDMI IN HDMI OUT
1/8" AUDIO IN 1/8" AUDIO OUT
USB
RELAY IN RS-232 → AV 721 S3 PRO3
RELAY OUT RS-422/485
POE LAN POWER

AV CTRL SWITCH D19 AV 721

MARSHAL
VS-102-HDI

POE SWITCH
32X32 PODM N7 → CAT6 → 1 [10/100/1000] POE
32X32 PODM N8 → CAT6 → 2 [10/100/1000] POE
32X32 PODM N9 → CAT6 → 3 [10/100/1000] POE
4 [10/100/1000] POE
5 [10/100/1000] POE
GROUND
POE SWITCH P202 → AC

CRESTRON
CEN-SWPOE-5

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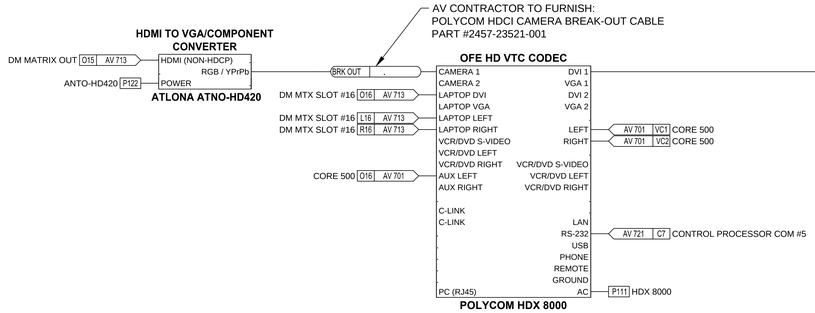

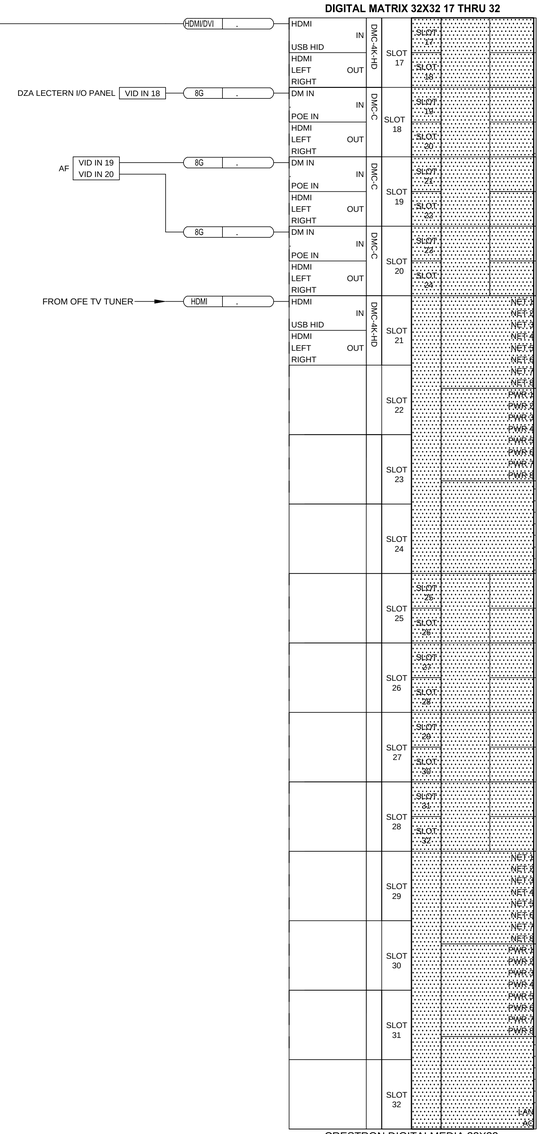

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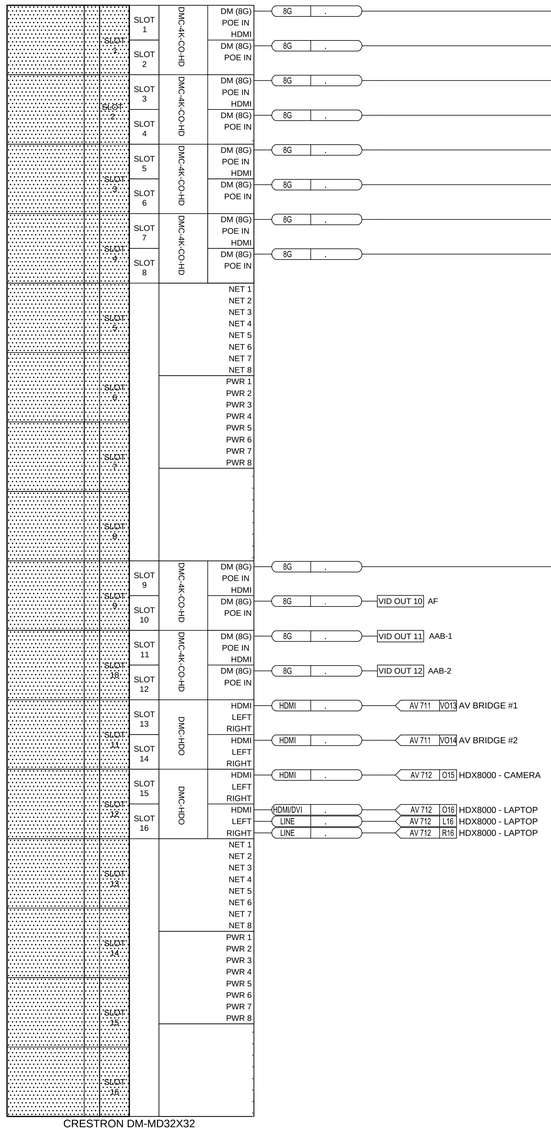
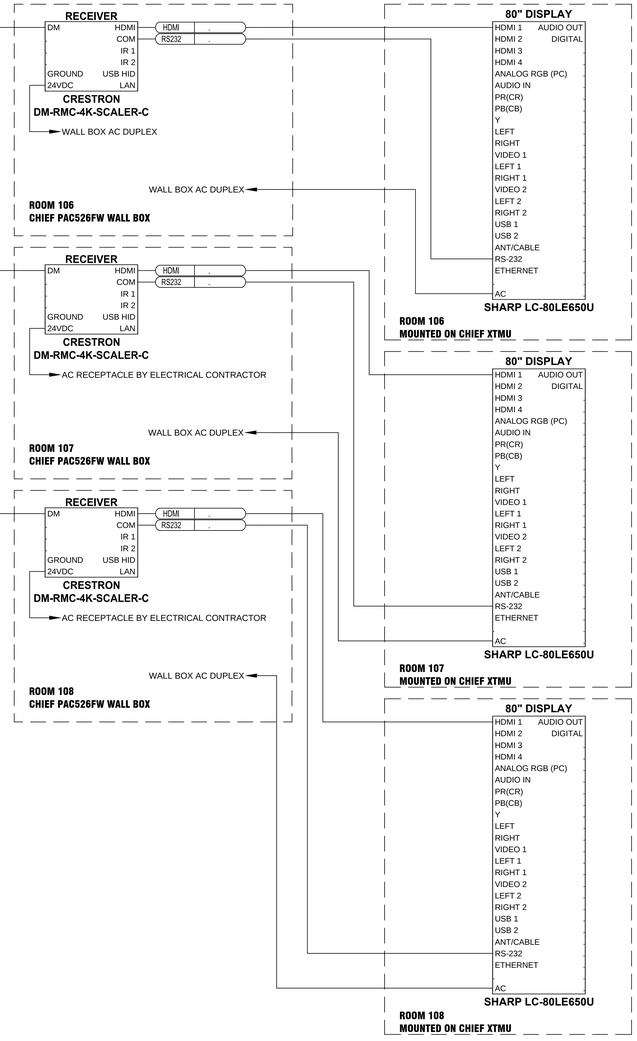
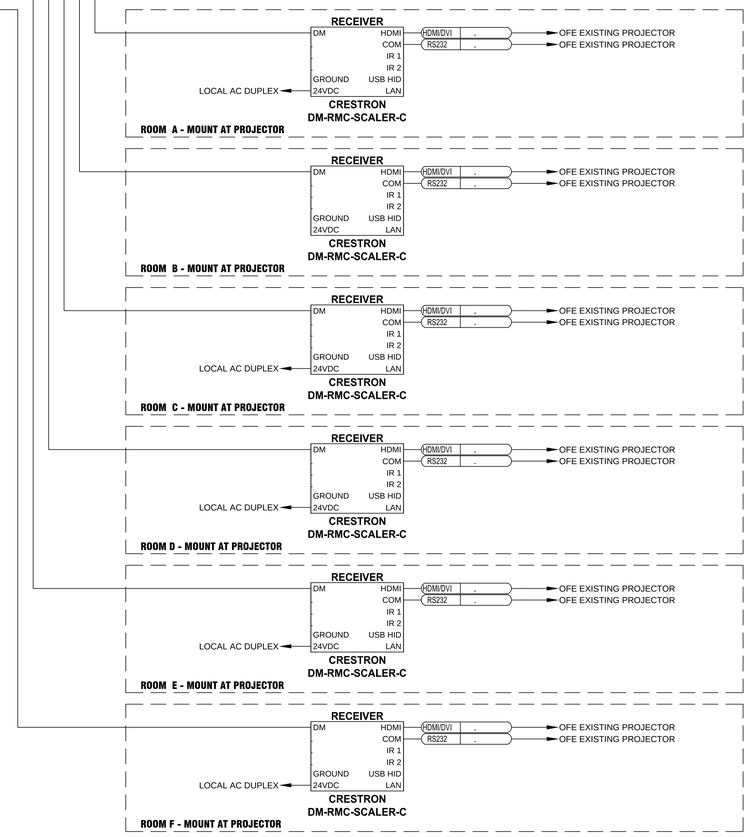



RECEIVER
DM HDMI COM IR 1 IR 2 GROUND USB HID 24VDC LAN
HDMI RS232
CRESTRON DM-RMC-4K-SCALER-C
WALL BOX AC DUPLEX
ROOM 106 CHIEF PAC526FW WALL BOX
AC RECEPTACLE BY ELECTRICAL CONTRACTOR
ROOM 107 CHIEF PAC526FW WALL BOX
ROOM 108 CHIEF PAC526FW WALL BOX
80" DISPLAY
HDMI 1 AUDIO OUT HDMI 2 DIGITAL HDMI 3 HDMI 4 ANALOG RGB (PC) AUDIO IN PR(CR) PB(CB) Y LEFT RIGHT VIDEO 1 LEFT 1 RIGHT 1 VIDEO 2 LEFT 2 RIGHT 2 USB 1 USB 2 ANT/CABLE RS-232 ETHERNET AC
SHARP LC-80LE650U
ROOM 106 MOUNTED ON CHIEF XTMU
ROOM 107 MOUNTED ON CHIEF XTMU
ROOM 108 MOUNTED ON CHIEF XTMU


RECEIVER
DM HDMI COM IR 1 IR 2 GROUND USB HID 24VDC LAN
HDMI/DVI RS232
OFE EXISTING PROJECTOR
LOCAL AC DUPLEX
CRESTRON DM-RMC-SCALER-C
ROOM A - MOUNT AT PROJECTOR
ROOM B - MOUNT AT PROJECTOR
ROOM C - MOUNT AT PROJECTOR
ROOM D - MOUNT AT PROJECTOR
ROOM E - MOUNT AT PROJECTOR
ROOM F - MOUNT AT PROJECTOR

EXISTING EQUIPMENT TO REMAIN IN USE. REMOVAL MAY BE REQUIRED BY AV CONTRACTOR. IF ITEMS ARE REMOVED OR MOVED, AV CONTRACTOR SHALL BE RESPONSIBLE FOR RE-AIMING AND ADJUSTING DISPLAYS AND PROJECTORS.

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(414) 476-1011

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WESTERN TECHNICAL COLLEGE - LUNDA CENTER
319 SEVENTH STREET NORTH
LA CROSSE, WI 54601

DESIGNED BY:	ISSUE DATE:
NC / MN	2015-03-20
SCALE:	DRAWING SET SIZE:
NTS	30" x 42"

DOCUMENT SET: BID DOCUMENTS

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE: VIDEO SCHEMATICS - MATRIX OUTPUTS 1-16

SHEET NUMBER:	REV:
AV713	0

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GENERAL SHEET NOTES

SHEET KEYNOTES

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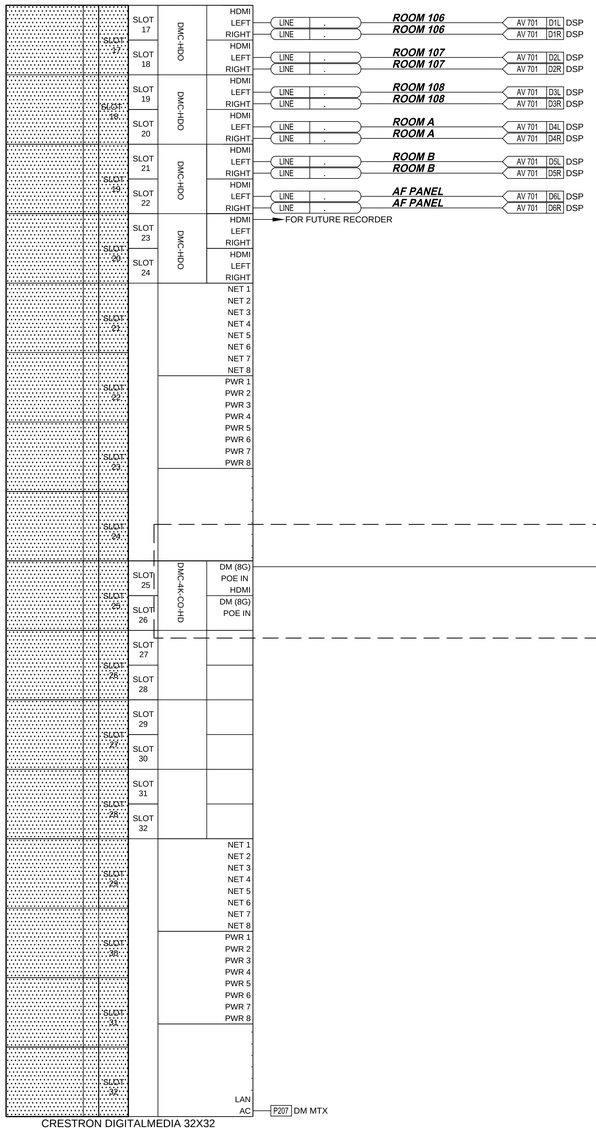
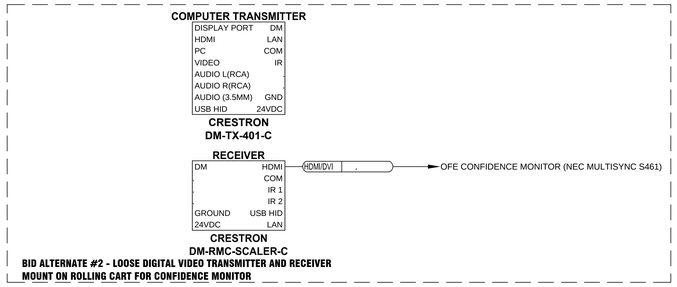
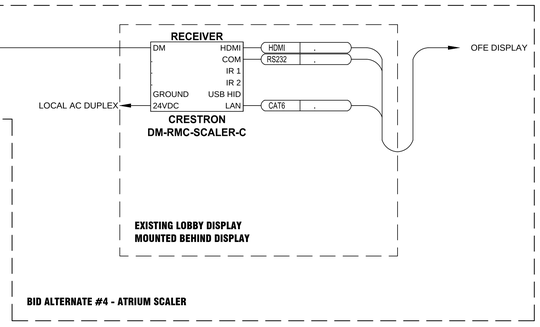


CRESTRON DIGITALMEDIA 32X32





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LA CROSSE, WI 54601

DESIGNED BY: NC / MN	ISSUE DATE: 2015-03-20
SCALE: NTS	DRAWING SET SIZE: 30" x 42"

DOCUMENT SET: BID DOCUMENTS

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
VIDEO SCHEMATICS - MATRIX OUTPUTS 17-32

SHEET NUMBER:	REV:
AV714	0

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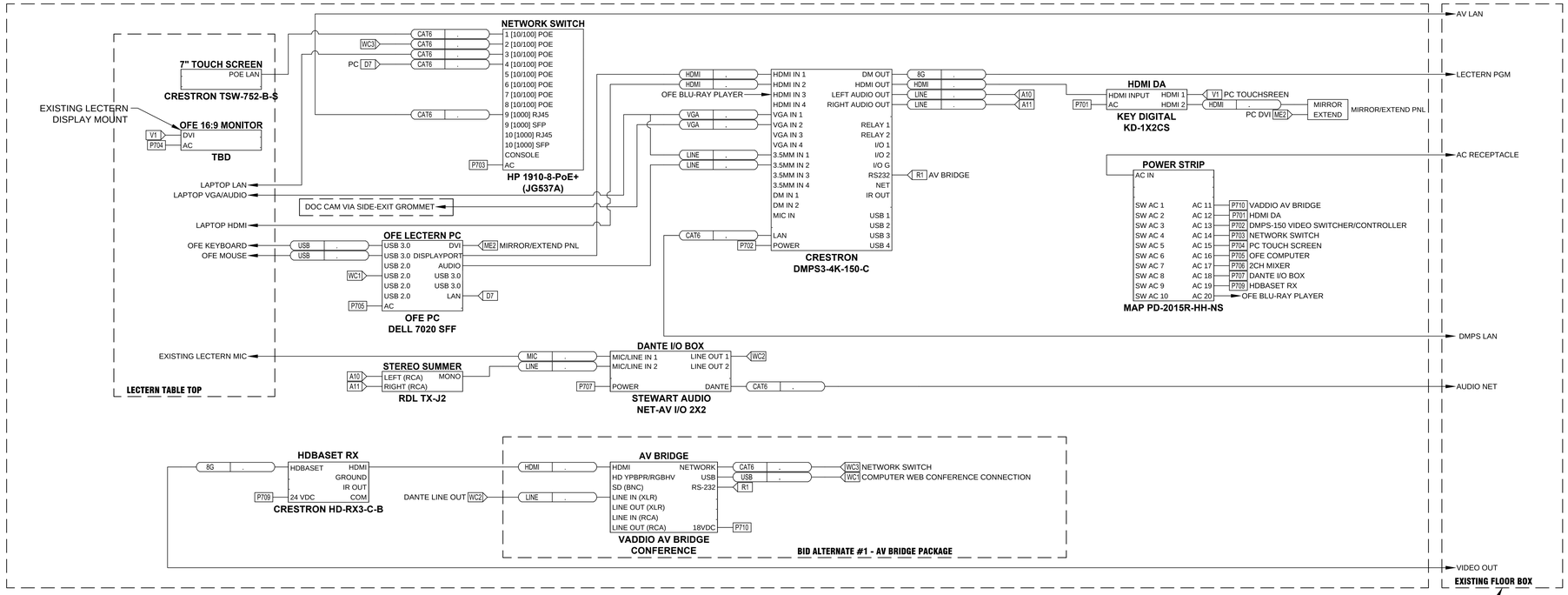
GENERAL SHEET NOTES

SHEET KEYNOTES

AAB-SERIES LECTERNS

TYPICAL OF AREAS A, B (QTY. 2)



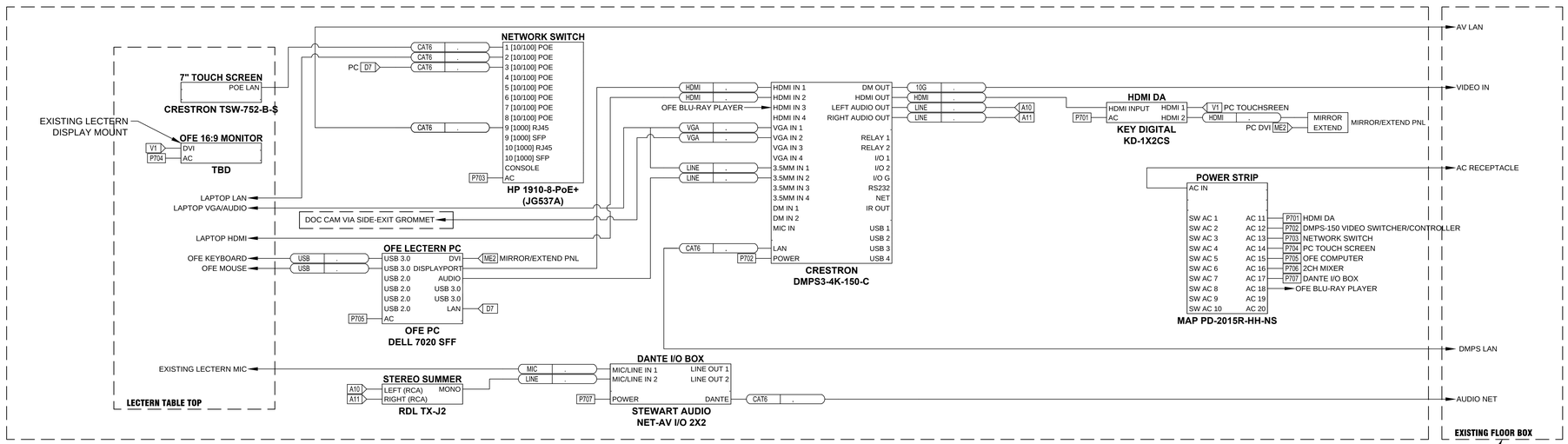
1) PROVIDE WHIP 20' IN LENGTH FROM SIDE-EXIT OF LECTERN. COMMUNICATIONS CABLING TO BE SNAKESKINNED TOGETHER. AC CABLING TO BE SEPARATED OUT.

2) MATCH COLORS OF BOOTS TO COLORS OF CONNECTORS SHOWN ON PANEL DRAWINGS.

3) AC CABLE TO BE ROUTED OUT OF SIDE EXIT TO POWER FLOOR BOX. COMMUNICATIONS CABLING ROUTED OUT OPPOSITE SIDE EXIT TO COMMUNICATIONS FLOOR BOX.

AAC-SERIES LECTERNS

TYPICAL OF AREAS C, D, E, F (QTY. 4)



1) PROVIDE WHIP 20' IN LENGTH FROM SIDE-EXIT OF LECTERN. COMMUNICATIONS CABLING TO BE SNAKESKINNED TOGETHER. AC CABLING TO BE SEPARATED OUT.

2) MATCH COLORS OF BOOTS TO COLORS OF CONNECTORS SHOWN ON PANEL DRAWINGS.

3) AC CABLE TO BE ROUTED OUT OF SIDE EXIT TO POWER FLOOR BOX. COMMUNICATIONS CABLING ROUTED OUT OPPOSITE SIDE EXIT TO COMMUNICATIONS FLOOR BOX.

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LA CROSSE, WI 54601

DESIGNED BY:	ISSUE DATE:
NC / MN	2015-03-20
SCALE:	DRAWING SET SIZE:
NTS	30" x 42"

DOCUMENT SET: BID DOCUMENTS

REVISIONS:

REV.	DATE	DESCRIPTION

SHEET TITLE: LECTERN SCHEMATICS

SHEET NUMBER: AV715 | REV: 0

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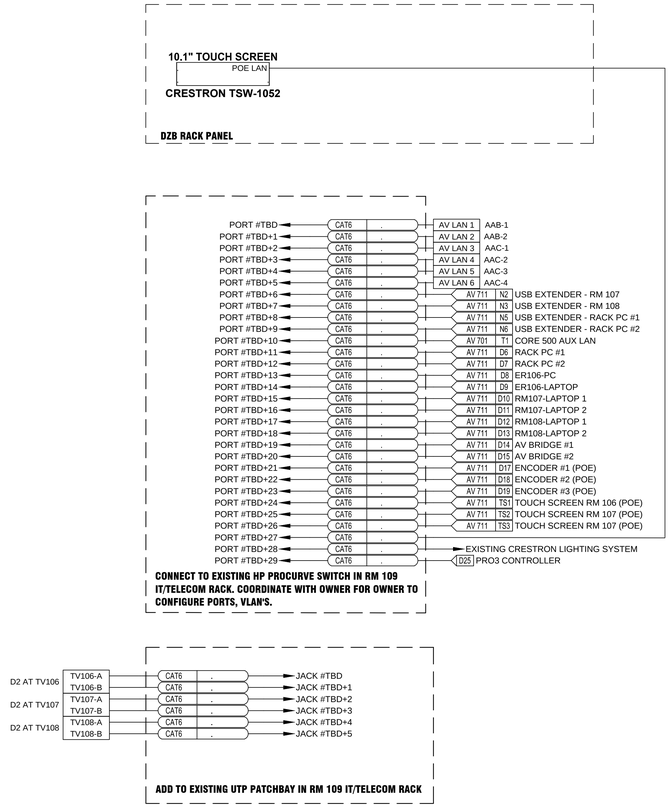
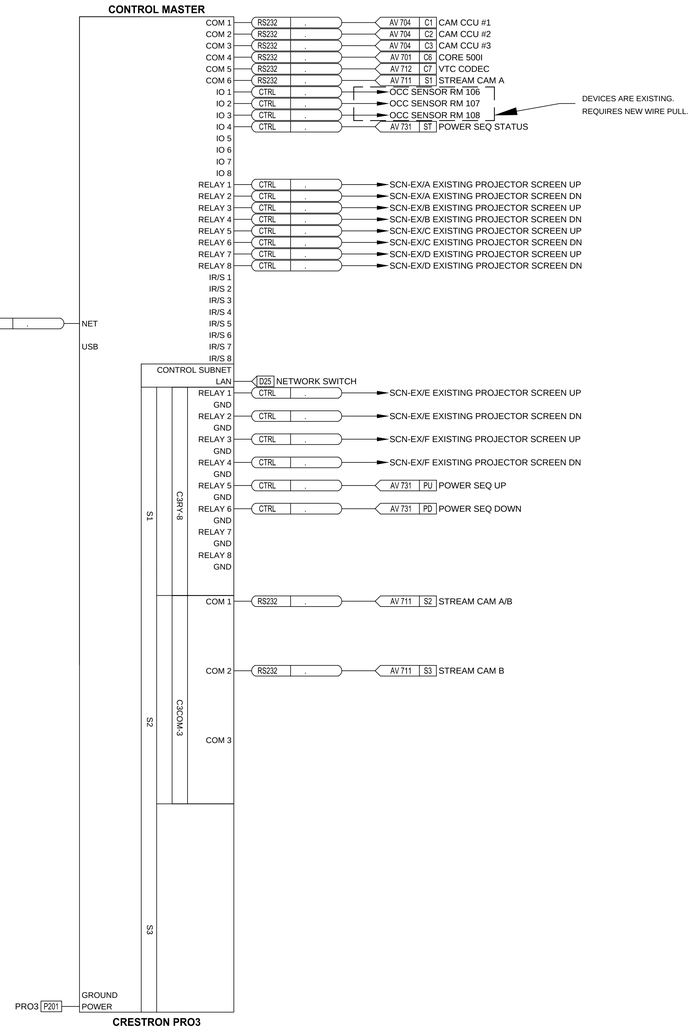
GENERAL SHEET NOTES **SHEET KEYNOTES**


10.1" TOUCH SCREEN
POE LAN
CRESTRON TSW-1052
DZB RACK PANEL
PORT #TBD CAT6 AV LAN 1 AAB-1
PORT #TBD+1 CAT6 AV LAN 2 AAB-2
PORT #TBD+2 CAT6 AV LAN 3 AAC-1
PORT #TBD+3 CAT6 AV LAN 4 AAC-2
PORT #TBD+4 CAT6 AV LAN 5 AAC-3
PORT #TBD+5 CAT6 AV LAN 6 AAC-4
PORT #TBD+6 CAT6 AV 711 N2 USB EXTENDER - RM 107
PORT #TBD+7 CAT6 AV 711 N3 USB EXTENDER - RM 108
PORT #TBD+8 CAT6 AV 711 N5 USB EXTENDER - RACK PC #1
PORT #TBD+9 CAT6 AV 711 N6 USB EXTENDER - RACK PC #2
PORT #TBD+10 CAT6 AV 701 T1 CORE 500 AUX LAN
PORT #TBD+11 CAT6 AV 711 D6 RACK PC #1
PORT #TBD+12 CAT6 AV 711 D7 RACK PC #2
PORT #TBD+13 CAT6 AV 711 D8 ER106-PC
PORT #TBD+14 CAT6 AV 711 D9 ER106-LAPTOP
PORT #TBD+15 CAT6 AV 711 D10 RM107-LAPTOP 1
PORT #TBD+16 CAT6 AV 711 D11 RM107-LAPTOP 2
PORT #TBD+17 CAT6 AV 711 D12 RM108-LAPTOP 1
PORT #TBD+18 CAT6 AV 711 D13 RM108-LAPTOP 2
PORT #TBD+19 CAT6 AV 711 D14 AV BRIDGE #1
PORT #TBD+20 CAT6 AV 711 D15 AV BRIDGE #2
PORT #TBD+21 CAT6 AV 711 D17 ENCODER #1 (POE)
PORT #TBD+22 CAT6 AV 711 D18 ENCODER #2 (POE)
PORT #TBD+23 CAT6 AV 711 D19 ENCODER #3 (POE)
PORT #TBD+24 CAT6 AV 711 TS1 TOUCH SCREEN RM 106 (POE)
PORT #TBD+25 CAT6 AV 711 TS2 TOUCH SCREEN RM 107 (POE)
PORT #TBD+26 CAT6 AV 711 TS3 TOUCH SCREEN RM 107 (POE)
PORT #TBD+27 CAT6
PORT #TBD+28 CAT6 EXISTING CRESTRON LIGHTING SYSTEM
PORT #TBD+29 CAT6 D25 PRO3 CONTROLLER
CONNECT TO EXISTING HP PROCURVE SWITCH IN RM 109 IT/TELECOM RACK. COORDINATE WITH OWNER FOR OWNER TO CONFIGURE PORTS, VLAN'S.
D2 AT TV106 TV106-A CAT6 JACK #TBD
TV106-B CAT6 JACK #TBD+1
D2 AT TV107 TV107-A CAT6 JACK #TBD+2
TV107-B CAT6 JACK #TBD+3
D2 AT TV108 TV108-A CAT6 JACK #TBD+4
TV108-B CAT6 JACK #TBD+5
ADD TO EXISTING UTP PATCHBAY IN RM 109 IT/TELECOM RACK


CONTROL MASTER
COM 1 RS232 AV 704 C1 CAM CCU #1
COM 2 RS232 AV 704 C2 CAM CCU #2
COM 3 RS232 AV 704 C3 CAM CCU #3
COM 4 RS232 AV 701 C6 CORE 500I
COM 5 RS232 AV 712 C7 VTC CODEC
COM 6 RS232 AV 711 S1 STREAM CAM A
IO 1 CTRL OCC SENSOR RM 106
IO 2 CTRL OCC SENSOR RM 107
IO 3 CTRL OCC SENSOR RM 108
IO 4 CTRL AV 731 ST POWER SEQ STATUS
DEVICES ARE EXISTING. REQUIRES NEW WIRE PULL.
IO 5
IO 6
IO 7
IO 8
RELAY 1 CTRL SCN-EX/A EXISTING PROJECTOR SCREEN UP
RELAY 2 CTRL SCN-EX/A EXISTING PROJECTOR SCREEN DN
RELAY 3 CTRL SCN-EX/B EXISTING PROJECTOR SCREEN UP
RELAY 4 CTRL SCN-EX/B EXISTING PROJECTOR SCREEN DN
RELAY 5 CTRL SCN-EX/C EXISTING PROJECTOR SCREEN UP
RELAY 6 CTRL SCN-EX/C EXISTING PROJECTOR SCREEN DN
RELAY 7 CTRL SCN-EX/D EXISTING PROJECTOR SCREEN UP
RELAY 8 CTRL SCN-EX/D EXISTING PROJECTOR SCREEN DN
IR/S 1
IR/S 2
IR/S 3
IR/S 4
EXISTING CRESTRON LIGHTING SYSTEM - RM 109 CTRL NET
IR/S 5
IR/S 6
USB IR/S 7
IR/S 8
CONTROL SUBNET
LAN D25 NETWORK SWITCH
RELAY 1 CTRL SCN-EX/E EXISTING PROJECTOR SCREEN UP
GND
RELAY 2 CTRL SCN-EX/E EXISTING PROJECTOR SCREEN DN
GND
RELAY 3 CTRL SCN-EX/F EXISTING PROJECTOR SCREEN UP
GND
RELAY 4 CTRL SCN-EX/F EXISTING PROJECTOR SCREEN DN
GND
RELAY 5 CTRL AV 731 PU POWER SEQ UP
GND
RELAY 6 CTRL AV 731 PD POWER SEQ DOWN
GND
RELAY 7
GND
RELAY 8
GND
C2:RY-8
S1
COM 1 RS232 AV 711 S2 STREAM CAM A/B
COM 2 RS232 AV 711 S3 STREAM CAM B
C2:COM-3
S2
COM 3
S3
GROUND
PRO3 P201 POWER
CRESTRON PRO3

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DESIGNED BY: NC / MN	ISSUE DATE: 2015-03-20
SCALE: NTS	DRAWING SET SIZE: 30" x 42"
DOCUMENT SET: BID DOCUMENTS	

REVISIONS:

REV	DATE	DESCRIPTION

SHEET TITLE:
NETWORK, CONTROL SCHEMATICS

SHEET NUMBER:	REV:
AV721	0

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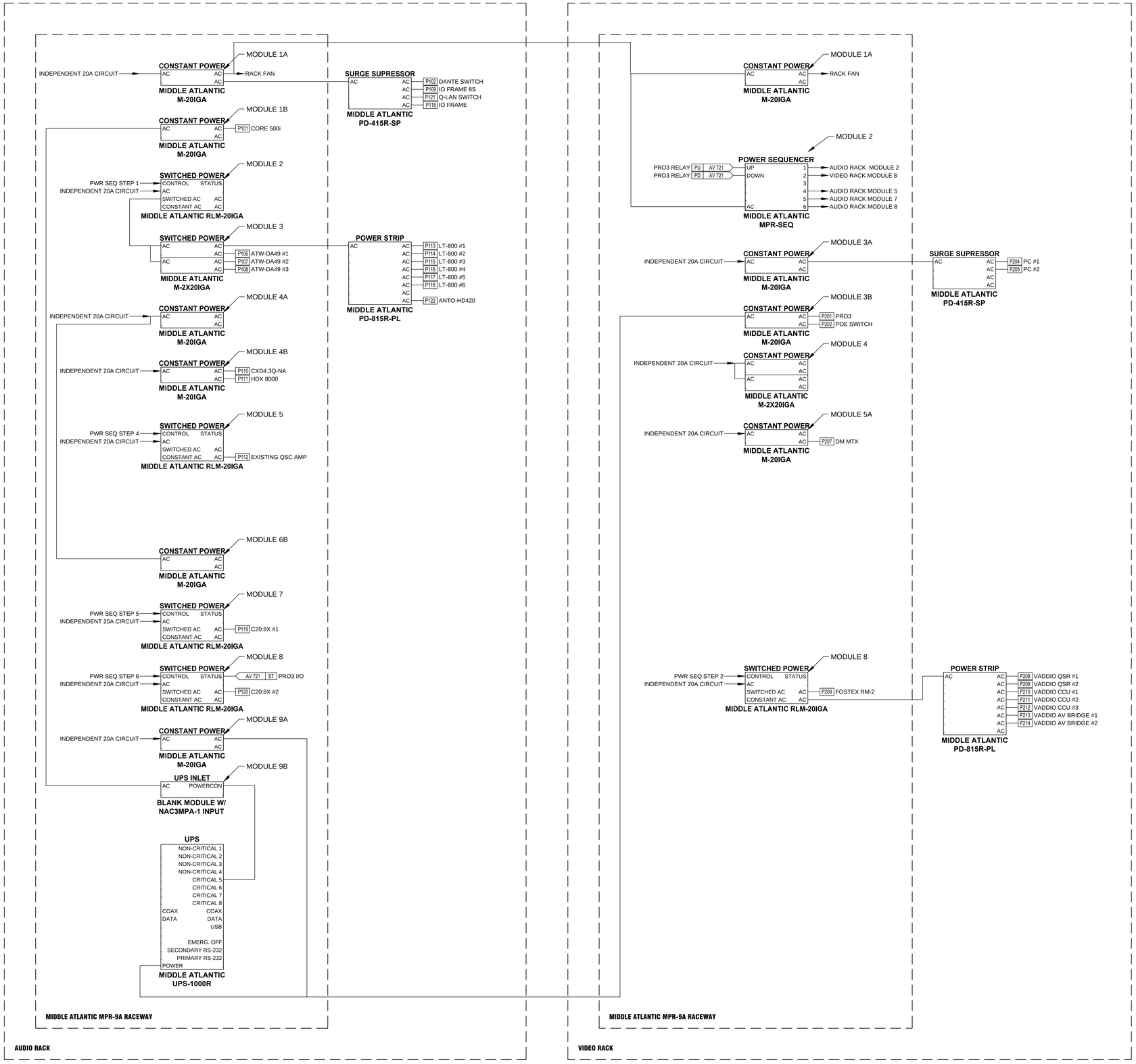
SHEET KEYNOTES



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WESTERN TECHNICAL COLLEGE - LUNDA CENTER

319 SEVENTH STREET NORTH
LA CROSSE, WI 54601

DESIGNED BY:	ISSUE DATE:
NC / MN	2015-03-20
SCALE:	DRAWING SET SIZE:
VARIES	30" x 42"

DOCUMENT SET: MM/DD/YY CONSTRUCTION DOCUMENTS

REVISIONS:

REV.	DATE	DESCRIPTION

SHEET TITLE:
POWER SCHEMATICS

SHEET NUMBER:	REV:
AV731	0

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ATTACHMENT B: PRODUCT PRICING/COST SUMMARY

BID PROPOSAL FORM

Audio Visual Upgrade Project for the Lunda Center

_____

(Description of goods/services being bid)

The undersigned proposes to furnish and deliver the above goods/services pursuant to the bid specification and made part hereof:

_____

Amount in words

$_____

Amount in numbers

_____ _____

Company Name Federal I.D. #

_____

Address

_____ _____

Signature of Authorized Agent Type or Print Name

Title:_____

_____ _____

Telephone Number Date

_____ _____

Fax Number E-mail address

ATTACHMENT C: Request for Bid Audio Visual System Upgrade Project

By submitting a bid in response to this Request for Bid process, the Bidder agrees that they have read, fully understand and agree to all terms, conditions and specifications and acknowledge that the WTC RFB document on file shall be the controlling document for any resulting contract. We certify that we have not either directly or indirectly, entered into any contract or participated in and collusion or otherwise taken any action in restraint of free competition , that no attempt has been made to induce any other persons or firm to submit or not to submit a bid, that this bid has been independently arrived at without collusion with any other bidder, competitor or potential competitor, that this bid has not been knowingly disclosed prior to the opening of bids to any other bidder or competitor, that this statement is true and accurate under penalty of perjury. I certify that the information I have provided in this bid is true and I understand that any false, misleading or missing information may disqualify the bid.

By submitting a bid, the bidder certifies that no relationship exists between the bidder and WTC that interferes with fair competition or is a Conflict of Interest, and no relationship exists between the Bidder and any other person or firm that constitutes a Conflict of Interest. Further, the Bidder certifies that no employee of WTC whose duties relate to this Request for Bid assisted the Bidder in preparing this bid in any way other than in his or her official capacity and scope of employment.

The Bidder certifies by submission of the bid that neither it nor its principals is presently debarred, suspended, declared ineligible or voluntarily excluded from participation in this Bid Process by any Federal or State Department or Agency.

Company Name (Print)	Your Name (Print)
Your Title/Position (Print)	Your Signature (Sign)
Date	Email Address
Telephone	Fax
Website	

The following items must be submitted with your bid to be considered as "complete" and meeting RFB specifications. Any of the below listed items that are not provided in a complete fashion will be grounds for your bid to be "rejected"

1) Complete the Product Pricing/Cost Summary Form (page 15 of this RFB)
2) Complete the Bid Signature Page (page 16 of this RFB)
3) Qualified Supplier Certification Statement (page 17 of this RFB)

ATTACHMENT D: Qualified Supplier Certification and Proof of Responsibility Statement

In submitting this bid, I certify that I am a "Qualified Supplier" for providing the items and/or services outlined in this Request for Bid. I agree to the following by initialing the Qualifications identified:

A. _____Our company has been in business for at least 5 years.

B. _____Our company is an authorized sales and servicing dealer for any and all equipment or items provided under the RFB.

C. _____Our company maintains a permanent place of business and is licensed to do business in the United States.

D. _____Our company is not presently debarred or disqualified by any Federal Agency, the Wisconsin Department of Administration or by any other State Agency for noncompliance with any equal opportunity, tax related or affirmative action requirements.

E. _____Our company is authorized to sell the products being proposed in the RFB, with no claim or suspicion of any kind as to any patent or copyright infringements, or claims of actions pertaining thereto, that would be of a legal concern or issue to your company or to this public agency as it relates to laws regarding patents, copyrights, royalties, infringements, etc.

F. _____In connection with the performance of any work covered by this RFB, we agree not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical conditions, developmental disability, sexual preference or national origin

ATTACHMENT E: VENDOR REFERENCES

VENDOR NAME:_____

Provide company name, address, contact person, telephone number, and appropriate information on the product(s) and/or service(s) used for three (3) installations with requirements similar to those included in this solicitation document.

Company Name_____

Address (include Zip + 4)_____

Contact Person and Title_____ Phone No._____
E-mail_____

Product(s) and/or Service(s) Used_____
_____

Company Name_____

Address (include Zip + 4)_____

Contact Person and Title_____ Phone No._____
E-mail_____

Product(s) and/or Service(s) Used_____
_____

Company Name_____

Address (include Zip + 4)_____

Contact Person and Title_____ Phone No._____
E-mail_____

Product(s) and/or Service(s) Used_____
_____

ATTACHMENT F: STANDARD TERMS AND CONDITIONS

1.0 SPECIFICATIONS: The specifications in this request are the minimum acceptable. When specific manufacturer and model numbers are used, they are to establish a design, type of construction, quality, functional capability and/or performance level desired. When alternates are bid/proposed, they must be identified by manufacturer, stock number, and such other information necessary to establish equivalency. WTC shall be the sole judge of equivalency. Bidders/bidders are cautioned to avoid bidding alternates to the specifications which may result in rejection of their bid/bid.

2.0 DEVIATIONS AND EXCEPTIONS: Deviations and exceptions from original text, terms, conditions, or specifications shall be described fully, on the bidder's/bidder's letterhead, signed, and attached to the request. In the absence of such statement, the bid/bid shall be accepted as in strict compliance with all terms, conditions, and specifications and the bidders/bidders shall be held liable.

3.0 QUALITY: Unless otherwise indicated in the request, all material shall be first quality. Items which are used, demonstrators, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the State of Wisconsin.

4.0 QUANTITIES: The quantities shown on this request are based on estimated needs. WTC reserves the right to increase or decrease quantities to meet actual needs.

5.0 DELIVERY: Deliveries shall be F.O.B. destination freight prepaid and included unless otherwise specified.

6.0 PRICING AND DISCOUNT: WTC qualifies for governmental and education discounts. Unit prices shall reflect these discounts.

6.1 Unit prices shown on the bid/bid or contract shall be the price per unit of sale (e.g., gal., cs., doz., ea.) as stated on the request or contract. For any given item, the quantity multiplied by the unit price shall establish the extended price, the unit price shall govern in the bid/bid evaluation and contract administration.

6.2 Prices established in continuing agreements and term contracts may be lowered due to general market conditions, but prices shall not be subject to increase for ninety (90) calendar days from the date of award. Any increase proposed shall be submitted to the contracting agency thirty (30) calendar days before the proposed effective date of the price increase, and shall be limited to fully documented cost increases to the contractor which are demonstrated to be industrywide. The conditions under which price increases may be granted shall be expressed in bid/bid documents and contracts or agreements.

6.3 In determination of award, discounts for early payment will only be considered when all other conditions are equal and when payment terms allow at least fifteen (15) days, providing the discount terms are deemed favorable. All payment terms must allow the option of net thirty (30).

7.0 UNFAIR SALES ACT: Prices quoted to WTC are not governed by the Unfair Sales Act.

8.0 ACCEPTANCE-REJECTION: WTC reserves the right to accept or reject any or all bids/bids, to waive any technicality in any bid/bid submitted, and to accept any part of a bid/bid as deemed to be in the best interests of the College. The contents of the bid/bid of the successful contractor will become contractual obligations if procurement action ensues.

Bids/bids MUST be date and time stamped by the soliciting purchasing office on or before the date and time that the bid/bid is due. Bids/bids date and time stamped in another office will be rejected. Receipt of a bid/bid by the mail system does not constitute receipt of a bid/bid by the purchasing office.

9.0 METHOD OF AWARD FOR BID: Award shall be made to the lowest responsible, responsive bidder unless otherwise specified in the request.

10.0 METHOD OF AWARD FOR RFB: Award shall be made to the Bidder who, in the sole judgment of the College, best meets the RFB needs and is awarded the highest amount of points based on the identified scoring criteria. All Bidders shall be notified in writing by College of the awarded result.

11.0 CERTIFICATION OF INDEPENDENT PRICE DETERMINATION: By signing this bid/bid, the bidder/bidder certifies, and in the case of a joint bid/bid, each party thereto certifies as to its own organization, that in connection with this procurement:

11.1 The prices in this bid/bid have been arrived at independently, without consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder/bidder or with any competitor;

11.2 Unless otherwise required by law, the prices which have been quoted in this bid/bid have not been knowingly disclosed by the bidder/bidder and will not knowingly be disclosed by the bidder/bidder prior to opening in the case of an advertised procurement or prior to award in the case of a negotiated procurement, directly or indirectly to any other bidder/bidder or to any competitor; and

11.3 No attempt has been made or will be made by the bidder/bidder to induce any other person or firm to submit or not to submit a bid/bid for the purpose of restricting competition.

11.4 Each person signing this bid/bid certifies that:

He/she is the person in the bidder's/bidder's organization responsible within that organization for the decision as to the prices being offered herein and that he/she has not participated, and will not participate, in any action contrary to 2.1 through 2.3 above; (or)

He/she is not the person in the bidder's/bidder's organization responsible within that organization for the decision as to the prices being offered herein, but that he/she has been authorized in writing to act as agent for the persons responsible for such decisions in certifying that such persons have not participated, and will not participate in any action contrary to 2.1 through 2.3 above, and as their agent does hereby so certify; and he/she has not participated, and will not participate, in any action contrary to 2.1 through 2.3 above.

12.0 DISCLOSURE OF INDEPENDENCE AND RELATIONSHIP:

12.1 Prior to award of any contract, a potential contractor shall certify in writing to the procuring agency that no relationship exists between the potential contractor and the procuring or contracting agency that interferes with fair competition or is a conflict of interest, and no relationship exists between the contractor and another person or organization that constitutes a conflict of interest with respect to a state contract. The Department of Administration may waive this provision, in writing, if those activities of the potential contractor will not be adverse to the interests of the state.

12.2 Contractors shall agree as part of the contract for services that during performance of the contract, the contractor will neither provide contractual services nor enter into any agreement to provide services to a person or organization that is regulated or funded by the contracting agency or has interests that are adverse to the contracting agency. The Department of Administration may waive this provision, in writing, if those activities of the contractor will not be adverse to the interests of the state.

13.0 INDEPENDENT CAPACITY OF CONTRACTOR: The parties hereto agree that the contractor, its officers, agents, and employees, in the performance of this agreement shall act in the capacity of an independent contractor and not as an officer, employee, or agent of the state. The contractor agrees to take such steps as may be necessary to ensure that each subcontractor of the contractor will be deemed to be an independent contractor and will not be considered or permitted to be an agent, servant, joint venturer, or partner of the state.

14.0 EMPLOYMENT: The contractor will not engage the services of any person or persons now employed by WTC, including any department, commission or board thereof, to provide services relating to this agreement without the written consent of the employing agency of such person or persons and of the contracting agency.

15.0 ORDERING: Purchase orders or releases via purchasing cards shall be placed directly to the contractor by an authorized agent.

16.0 PAYMENT TERMS AND INVOICING: WTC normally will pay properly submitted vendor invoices within thirty (30) days of receipt providing goods and/or services have been delivered, installed (if required), and accepted as specified.

Invoices presented for payment must be submitted in accordance with instructions contained on the purchase order including reference to purchase order number and submittal to the correct address for processing.

A good faith dispute creates an exception to prompt payment.

17.0 TAXES: WTC is exempt from payment of all federal tax and Wisconsin state and local taxes on its purchases except Wisconsin excise taxes as described below.

WTC is required to pay the Wisconsin excise or occupation tax on its purchase of beer, liquor, wine, cigarettes, tobacco products, motor vehicle fuel and general aviation fuel. However, it is exempt from payment of Wisconsin sales or use tax on its purchases. WTC may be subject to other states' taxes on its purchases in that state depending on the laws of that state. Contractors performing construction activities are required to pay state use tax on the cost of materials.

18.0 GUARANTEED DELIVERY: Failure of the contractor to adhere to delivery schedules as specified or to promptly replace rejected materials shall render the contractor liable for all costs in excess of the contract price when alternate procurement is necessary. Excess costs shall include the administrative costs.

19.0 ENTIRE AGREEMENT: These Standard Terms and Conditions shall apply to any contract or order awarded as a result of this request except where special requirements are stated elsewhere in the request; in such cases, the special requirements shall apply. Further, the written contract and/or order with referenced parts and attachments shall constitute the entire agreement and no other terms and conditions in any document, acceptance, or acknowledgment shall be effective or binding unless expressly agreed to in writing by the contracting authority.

20.0 APPLICABLE LAW AND COMPLIANCE: This contract will be governed by Wisconsin State Statute and the provisions of the Uniform Commercial Code

(UCC). WTC Purchasing Consortium and other public agencies participating on the contract are provided all rights and remedies of contract as afforded under the UCC for the State of Wisconsin, and include all rights and protections afforded public institutions under the laws of Wisconsin and any federal laws or statutes that apply.

21.0 ASSIGNMENT: No right or duty in whole or in part of the contractor under this contract may be assigned or delegated without the prior written consent of WTC.

22.0 NONDISCRIMINATION/AFFIRMATIVE ACTION In connection with the performance of work under this contract, the Contractor agrees not to discriminate against any employee or applicant for employment because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s.51.01(5), Wisconsin Statutes, sexual orientation as defined in x.111.32(13m) Wis. Stats., or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Except with respect to sexual orientation, the Contractor further agrees to take affirmation action to ensure equal employment opportunities.

To the extent required by law, 41 CFR 60-1.4(a) and (b) are incorporated by reference in these Standard Terms and Conditions. Additionally, the Contractor certifies compliance with 41 CFR 60-1.8 and does not and will not maintain any facilities provided for employees in a segregated manner.

23.0 PATENT INFRINGEMENT: The contractor selling to the WTC the articles described herein guarantees the articles were manufactured or produced in accordance with applicable federal labor laws. Further, that the sale or use of the articles described herein will not infringe any United States patent. The contractor covenants that it will at its own expense defend every suit which shall be brought against WTC (provided that such contractor is promptly notified of such suit, and all papers therein are delivered to it) for any alleged infringement of any patent by reason of the sale or use of such articles, and agrees that it will pay all costs, damages, and profits recoverable in any such suit.

24.0 SAFETY REQUIREMENTS: All materials, equipment, and supplies provided to WTC must comply fully with all safety requirements as set forth by the Wisconsin Administrative Code and all applicable OSHA Standards.

25.0 WARRANTY: Unless otherwise specifically stated by the bidder/bidder, equipment purchased as a result of this request shall be warranted against defects by the bidder/bidder for one (1) year from date of receipt. The equipment manufacturer's standard warranty shall apply as a minimum and must be honored by the contractor.

26.0 INSURANCE RESPONSIBILITY: The contractor performing services for WTC shall:

26.1 Maintain worker's compensation insurance as required by Wisconsin Statutes, for all employees engaged in the work.

26.2 Maintain commercial liability, bodily injury and property damage insurance against any claim(s) which might occur in carrying out this agreement/contract. Minimum coverage shall be one million dollars ($1,000,000) liability for bodily injury and property damage including products liability and completed operations. Provide motor vehicle insurance for all owned, non-owned and hired vehicles that are used in carrying out this contract. Minimum coverage shall be one million dollars ($1,000,000) per occurrence combined single limit for automobile liability and property damage.

26.3 WTC reserves the right to require higher or lower limits where warranted.

27.0 CANCELLATION: WTC reserves the right to cancel any contract in whole or in part without penalty due to nonappropriation of funds or for failure of the contractor to comply with terms, conditions, and specifications of this contract.

28.0 PUBLIC RECORDS ACCESS: It is the intention of WTC o maintain an open and public process in the solicitation, submission, review, and approval of procurement activities.

Bid/bid openings are public unless otherwise specified. Records may not be available for public inspection prior to issuance of the notice of intent to award or the award of the contract.

29.0 PROPRIETARY INFORMATION: Any restrictions on the use of data contained within a request, must be clearly stated in the bid/bid itself. Proprietary information submitted in response to a request will be handled in accordance with applicable State of Wisconsin procurement regulations and the Wisconsin public records law. Proprietary restrictions normally are not accepted. However, when accepted, it is the vendor's responsibility to defend the determination in the event of an appeal or litigation.

29.1 Data contained in a bid/bid, all documentation provided therein, and innovations developed as a result of the contracted commodities or services cannot be copyrighted or patented. All data, documentation, and innovations become the property of the State of Wisconsin.

29.2 Any material submitted by the vendor in response to this request that the vendor

considers confidential and proprietary information and which qualifies as a trade secret, as provided in s. 19.36(5), Wis. Stats., or material which can be kept confidential under the Wisconsin public records law, must be identified on a Designation of Confidential and Proprietary Information form (Bidders/bidders may request the form if it is not part of the Request for Bid/Request Bid package). Bid/bid prices cannot be held confidential.

30.0 RECYCLED MATERIALS: WTC desires to purchase products incorporating recycled materials whenever technically and economically feasible. Bidders are encouraged to bid products with recycled content which meet specifications.

31.0 MATERIAL SAFETY DATA SHEET: If any item(s) on an order(s) resulting from this award(s) is a hazardous chemical, as defined under 29CFR 1910.1200, provide one (1) copy of a Material Safety Data Sheet for each item with the shipped container(s) and one (1) copy with the invoice(s).

32.0 PROMOTIONAL ADVERTISING / NEWS RELEASES: Reference to or use of WTC any of its departments, agencies or other subunits, or any state official or employee for commercial promotion is prohibited. News releases pertaining to this procurement shall not be made without prior approval of WTC. Release of broadcast e-mails pertaining to this procurement shall not be made without prior written authorization of the contracting agency.

33.0 HOLD HARMLESS: The contractor will indemnify and save harmless WTC and all of its officers, agents and employees from all suits, actions, or claims of any character brought for or on account of any injuries or damages received by any persons or property resulting from the operations of the contractor, or of any of its contractors, in prosecuting work under this agreement.

34.0 FOREIGN CORPORATION: A foreign corporation (any corporation other than a Wisconsin corporation) which becomes a party to this Agreement is required to conform to all the requirements of Chapter 180, Wis. Stats., relating to a foreign corporation and must possess a certificate of authority from the Wisconsin Department of Financial Institutions, unless the corporation is transacting business in interstate commerce or is otherwise exempt from the requirement of obtaining a certificate of authority. Any foreign corporation which desires to apply for a certificate of authority should contact the Department of Financial Institutions, Division of Corporation, P. O. Box 7846, Madison, WI 53707-7846; telephone (608) 261-7577.

35.0 FORCE MAJEURE: Neither party shall be in default by reason of any failure in performance of this Agreement in accordance with reasonable control and without fault or negligence on their part. Such causes may include, but are not restricted to, acts of nature or the public enemy, acts of the government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes and unusually severe weather, but in every case the failure to perform such must be beyond the reasonable control and without the fault or negligence of the party.

36.0 RECORDKEEPING AND RECORD RETENTION: The contractor shall establish and maintain adequate records of all expenditures incurred under the contract. All records must be kept in accordance with generally accepted accounting procedures. All procedures must be in accordance with federal, state and local ordinances.

The contracting agency shall have the right to audit, review, examine, copy, and transcribe any pertinent records or documents relating to any contract resulting from this bid/bid held by the contractor. The contractor will retain all documents applicable to the contract for a period of not less than three (3) years after final payment is made.